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WAR DAMAGE AND THE BUILDING INDUSTRY

THE return within the London Defence Region to "lump sum" contracts for war damage repairs may be welcomed as a first stage in the change from regimentation to normality in the building industry. It is significant also as a somewhat belated recognition by the Ministry of Health of the contribution which the industry can make towards the fulfilment of the housing programme. It can, however, only be regarded as an interim measure and should not obscure the urgent necessity of restoring to the industry at the earliest possible moment the greater freedom which alone will enable it to give its maximum service to the community.

Slowly but surely it is being brought home both to the Government and the public that political slogans will not build houses, nor is building a task for amateurs, however earnest and well meaning they may profess themselves to be.

The circular addressed by the Ministry of Health to local and housing authorities appears, however, to introduce unnecessary complications. Regarded from the point of view of both the architect and contractor, the normal preparation of quantities cannot fail in the long run to prove the most satisfactory method of both tendering and contracting.

When competitive tenders are invited a common and scientific basis is the ideal to be aimed at, and this can only be achieved by the provision of complete quantities which give the contractor greater confidence in his undertaking, the architect more effective control during progress, and enable the surveyor to make more readily the final adjustments in the account. Taking the long view, therefore, this method would result in a contract being fulfilled with an economy of both time and cost.

It may be argued that the preparation of quantities for the type of work now under consideration, with the corollary of careful plans upon which they are based, involves too serious a delay. It is, however, open to question whether this in fact is the case, particularly when it is to be noted from a critical analysis of the Ministry's circular that important items are to be quantified, and this process must of necessity entail some expenditure of time.

Compared with their respective tasks in the case of a new structure, it is admittedly no easy matter for either the architect to prepare plans or the surveyor to arrive at the essential particulars for quantities on a war-damaged building. We have no doubt, however, that all these factors were present in the minds of the builders when they agreed with the Ministry upon the form of contract now to be adopted. The well-informed article by a Special Correspondent in our issue of January 25 clearly indicates some of the complexities which nevertheless may arise.

The system of "cost plus" has been severely criticised in many quarters, but we venture to think its evils are due not so much to the system *per se* as to its operation in cases where the contractor is unaccustomed to the system. Moreover, conditions of labour entirely alien to his normal business are an additional factor operating against its efficiency.

Is not the root cause of most of the difficulties encountered during the war years in the repair of war-damaged buildings the fact that the building industry has been gravely disorganised as the result of the Essential Work Order? In a time of emergency this Order may, and undoubtedly did, have some measure of justification, but the conditions to-day are, in our judgment, more favourable to a return to normal. The industry is being called on to make a supreme effort to restore to the people the houses they have lost and those in need of repair, but instead of the builder being permitted to control his own labour, he is still subjected to the Control of Engagement and Restriction of Transfer Orders as well as the overriding influence of the local authority. He is unable to get back from the Forces the men he needs and is hampered on all sides by shortages of material due to lack of foresight and unnecessary controls exercised in many instances by officials who have little or no experience of building and its requirements.

We are convinced that the remedy for these ills is not to be found by an attempt to regiment the industry but to allow it to operate with the freedom, within reasonable limits, which alone can ensure speedy and effective results.

It is common knowledge that the cost to the State—and when all is said and done the State is the taxpayer—of the prodigal waste of time and labour expended on first-aid repairs during recent years has been out of all proportion to the results achieved.

This is the time when the case should be stated in plain terms. If London is to regain even a semblance of its former condition, the building industry must have its freedom restored and be given an opportunity to recover its momentum. In this connection we are strongly of opinion that whilst housing rightly claims priority, too great emphasis has been laid on the capacity of the local authority in this respect and too little on the greater contribution to be achieved by private enterprise. Furthermore, we contend that the term "housing" should embrace all types of dwellings.

It is essential, therefore, that a balanced programme be formulated. Office buildings, workshops, factories, churches, hospitals and schools throughout the Metropolis have suffered damage and require repair. The house dweller, whether he dons dungarees or a black coat, must have the factory, workshop or office on which his livelihood depends made fit for occupation, and it is idle to ignore the urgent need for spreading the operation of essential repairs over a wider field and to remove as speedily as possible the controls which now so gravely imperil its success.

In this connection, too, there is the grave danger, repeatedly and wisely emphasised by the President of the R.I.B.A., of losing the skilled craftsmen who in the past have constituted the backbone of the building industry. To quote the preacher—"All these trust to their hands and everyone is wise in his work and without these cannot a city be inhabited."

NOTES AND NEWS

Columbus Memorial Lighthouse.

At a recent meeting, the General Assembly of U.N.O. gave unanimous approval to the proposal to erect a Memorial to Christopher Columbus. The Dominican Republic has been chosen as the site for the memorial as being the centre of discovery and colonisation of the Western Hemisphere. The monument will be erected by the twenty-one Republics of the Americas as a symbol of unity and co-operation. On the same site it is also proposed to house a Columbus Library and Museum which will serve as a centre of information for all countries of the world.

In an international competition, held before the war, in which 455 architects from 48 countries submitted designs, a British architect, Mr. J. L. Gleave, M.A., A.R.I.B.A., M.T.P.I., of Edinburgh, was the winner. His design is being used for the memorial and takes the form of a lighthouse placed on a gigantic recumbent cross three-quarters of a mile long.

A 40-ft. model of this memorial will be on show at the Royal Institute of British Architects, 66, Portland Place, W.1, every week-day from March 13 to March 23, from 10 a.m. to 6 p.m. Admission is free.

Monthly Digest of Statistics.

The first number of a Monthly Digest of Statistics, compiled by the Central Statistical Office, has just been issued (H.M. Stationery Office, price 2s. 6d. net). The section on Building includes the estimated number of insured male workers (aged 16-64) in the building and civil engineering industries in various categories of employment; the production of building materials and components (cement, building bricks, slates, roofing tiles, asbestos cement sheets, metal windows and doors, and gas and electric cookers); and temporary houses and new permanent houses under local authorities' schemes up to the end of November. Under Raw Materials, the production and consumption figures for softwood and hardwood are given. The Digest is useful for general reference and guidance, and will become more so as building gets into its stride; but by those who are closely concerned with the industry comprehensive monthly statistics are needed and we believe that the publication of such is now under consideration by the Ministry of Works.

Station Improvements.

The L. and N.E. Railway has issued a pamphlet embodying a code of practice for the guidance of its Station Improvements Committee. This indicates that during the post-war years it is intended to give the public the best possible service, including reconstructed railway stations. We illustrated in our issue of February 8 a new experimental station building constructed by the L.M.S. company, and now we find a comprehensive general programme for the steps desirable in remodelling stations advocated by the L.N.E. Railway.

This seems to cover a wide range, including the design and grouping of the station buildings; the improvement and decoration of approaches by planting and gardens; better organisation and equipment for booking halls, platforms, etc.; adequate lighting to frontages, and other exterior points, the interiors and the notices requiring special illumination. Where electricity is available, high wattage pendants or fluorescent lighting are recommended as suitable alternatives, according to the purpose envisaged. Special importance is attached to the placing and lighting of timetables, indicators and other notices.

Attractive colour schemes and the orderly distribution of advertisements are also hinted at. The needs of the staff and the amenities for passengers also come under review, so that when it has been found practicable to implement the various recommendations set out in this pamphlet a marked advance in the comfort and amenities of our railway stations may be expected.

Is English Architecture Dead?

At the next ordinary general meeting of the Architectural Association on Tuesday, February 26, at 7.30 p.m., there will be a debate on the motion—"That Architecture in England is dead."

Planning Exhibition at Cheshunt.

The Urban District Council of Cheshunt are holding a Housing and Planning Exhibition at the Grammar School, Windmill-lane, Cheshunt, now open until Wednesday, February 27, daily (except Sunday), from 3 p.m. to 9 p.m. The Exhibition is both regional and local in character. Of local interest are the new Cheshunt draft planning scheme, which is based on the London Regional Plan of Sir Patrick Abercrombie, and diagrams showing how the plans have been built up and the relation of Cheshunt to London Region. Plans for new housing schemes in the district; for temporary prefabricated houses, permanent houses; blocks of flats, and site layouts for new housing sites, are being exhibited, as are plans for new schools, together with models of some of the work.

Ex-Service Surveyors' Refresher Discussions

The second of the three informal meetings arranged by the Chartered Surveyors' Institution, with the object of assisting ex-Service and ex-civil internee members to bring their professional knowledge up to date with war-time legislation, will be held on Monday, February 25, at 5.30 p.m., when the Senior Vice-President (Mr. A. G. Harfield) will open a discussion on "Compulsory Acquisition from the point of view of Local Authorities." The third meeting in this series will be held on March 25, at the same hour, when Mr. S. Vvyvian Hicks (Vice-President) will deal with "War Damage Valuations."

At a meeting of the London Junior Organisation, which is to be held on Monday, April 8, at 5.30 p.m., questions on technical matters of current interest to surveyors will be answered by experts.

L.C.C. £15 Millions Housing Budget.

Mr. F. C. R. Douglas, M.P., chairman of the Finance Committee, submitting the annual estimates for 1946-47 to London County Council on Tuesday, said the capital estimates for next year were the largest in the Council's history. They included £15,000,000 for housing. Mr. C. W. Gibson, chairman of the Housing and Public Health Committee, estimated that the Council would have completed 47 post-war houses or flats by March 31 and 180 by June 30. In addition, 120 war destroyed dwellings should be rebuilt by March 31, rising to about 250 by June 30.

Professional Announcements,

Messrs. L. Sylvester Sullivan and Basil M. Sullivan, FF.R.I.B.A., have moved their offices temporarily from 1, South-square, Gray's Inn, to 3, Verulam-buildings, Gray's Inn, W.C.1, where the telephone number is Holborn 2805. Their permanent new address will be notified later.

Mr. Laurence Kennard, F.R.I.B.A., F.S.I., has taken into partnership Mr. C. W. Lowe, A.R.I.B.A., recently released from War Department service, and the firm will practise under the style of Laurence Kennard at the same address, 14, Railway-approach, London Bridge, S.E.1 (tele.: Hop 2732).

Mr. H. T. Hickman, A.R.I.B.A., 5, Blackwell Scar, Carmel-road South, Darlington, Co. Durham, will be pleased to receive at that address trade catalogues, etc., particularly relating to rural housing.

Mr. Gordon E. Payne, O.B.E., (M.) F.S.I., M.T.P.I., planning consultant, has taken Mr. A. Budge Reid, A.R.I.B.A., A.R.I.A.Scot., and Mr. T. F. Lawson, A.R.I.B.A., P.A.S.I., into partnership. The practice will operate under the title of Gordon Payne and Partners, chartered architects, chartered surveyors and town planning consultants, at 2, King-street and Midland Bank-chambers, Gloucester, and in London and Bristol.

Mr. C. John Dunham, F.S.I., chartered surveyor, having terminated his appointment as technical adviser to the War Damage Commission at headquarters, has resumed private practice from temporary offices at 20, Orchard-street, Portman-square, W.1 (tel.: Welbeck 2866).

Mr. Daniel B. Connal, P.A.S.I., A.I.A.S., chartered quantity surveyor, has commenced practice at 13, Christopher-street, Finsbury-square, London, E.C.2 (tele.: Bishopsgate 8655).

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COMING EVENTS

Monday, February 25.

Institution of Sanitary Engineers. Social and Dance. Caxton Hall, S.W.1. 7.30 p.m.

Federation of Master Builders. Annual General Meeting and Conference, Blackpool. (Continuing until Wednesday.)

Tuesday, February 26.

Institution of Civil Engineers. Mr. J. F. Bickerton and Petros Protopapadakis on "Layout of Passenger Stations." Great George-street, S.W.1. 5.30 p.m.

Architectural Association. Debate on "That Architecture in England is Dead." 34, Bedford-square, W.C.1. 7.30 p.m.

Saturday, March 2.

Ecclesiological Society. Visit to St. Andrew's Church, Plaistow, E., and West Ham Parish Church. 2.30 p.m.

From *The Builder* of 1846.

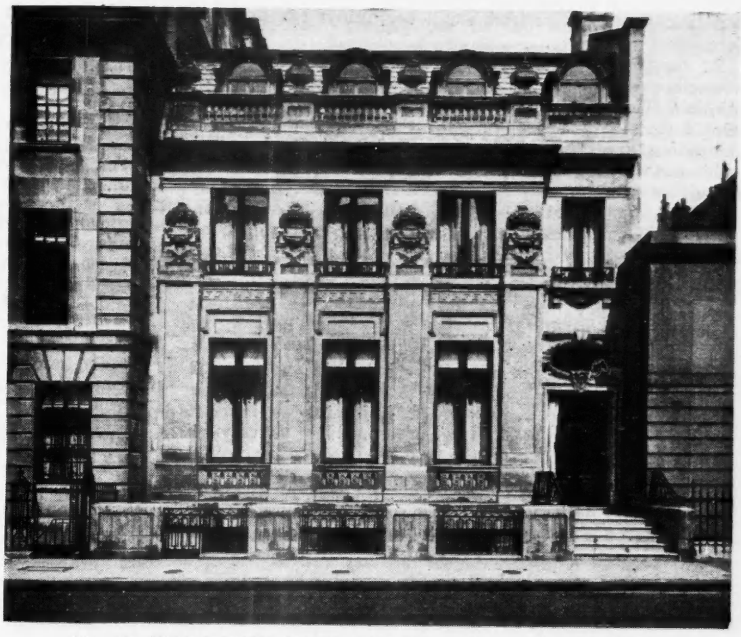
Saturday, February 21, 1846.

Railway Tell-Tale.—A Mr. W. Constable, of Brighton, has suggested the construction of an instrument to be attached to a railway carriage that shall describe on a chart a line indicating the various speeds of a journey. Such a *tell-tale* would act as a wholesome check on a reckless engine-driver, and be the means of preventing some of those accidents which are so injurious in their anticipations, and so horrible in their results.

ARCHITECTURAL REMINISCENCES

No. 12

By SYDNEY TATCHELL



No. 12, DEVONSHIRE PLACE, W. Designed by Sydney Tatchell.

THE only excuse to be offered for acceding to the Editor's request to record some reminiscences and thus to obtrude myself in print is that they may be of passing interest to those of my contemporaries and possibly to some of the younger men who have a leisured moment in which to read them.

To have served articles with Thomas Henry Watson (Soane Medallist, 1864) is, to those who remember his varied and wide practice, his flair for teaching, and the exceptional opportunity his office afforded for learning one's job, a warranty that a pupil had received a grounding in "things that matter."

One looks back almost with envy on what, in the light of to-day's streamlined activity, were leisurely and well-mannered years. The telephone had not yet penetrated the sanctity of professional chambers. The typewriter was regarded as an offensive but necessary intrusion, but never used for correspondence with clients. Photo-printing was unknown. Sketch plans and working drawings were prepared with ground Chinese ink on Whatman hand-made paper and all copies were made by hand.

Each of Watson's pupils had to pass through the clerks' room before being promoted to the drawing office. Unpleasant and boring as it was to clean the ink-bottles each Monday morning, to index the letter-books, keep the stamp account and the drawing register, when ultimately he rose to the dignity of drawing-board and T-square he at any rate had acquired a knowledge of office routine.

Pupils were expected to attend twice a week in a builder's workshop to study bench work before arrival at 9 a.m. at the office. Then lectures and the studio at the A.A. would occupy many evenings, and, in addition, Saturday afternoons and holidays were expected to be employed in sketching and measuring old buildings, evidence of the work done being submitted to Watson each month.

Great Marlborough-street was then the A.A. headquarters where Driver was secretary and Yerbury a junior, and Farrow, Max Clarke and Roger Smith lectured, and Leonard Stokes enlivened the evening studio with his constructive but explosive criticisms. Pomeroy, the sculptor, gave those of us who cared to go to his Chelsea studio some valuable lessons in architectural modelling.

Wonnacott and Harry Sirr had not long left Watson's, nor had Sydney Perks, who later became architect to the City Corporation. In the drawing office in my day were amongst others, Watson's only son, Arthur (articled the same day as myself), Wyon, a cousin of the medallist, Corfield, the son of Professor Corfield, Bernard Webb, and W. Henry White, the principal assistant, whose work later in private practice can be distinguished amongst the doctors' houses in Harley-street and the neighbourhood.

Watson inherited from his father, John Burges Watson—one of the first members of the R.I.B.A.—a facility in planning and design, of which his country houses at Somerhill for Sir Julian Goldsmid and Whitney Court in Herefordshire for the Hope family are but two outstanding examples. Nearer home was his conversion of Lord Stanley's town house for the Arts Club, now, alas! destroyed. These and other jobs gave his pupils experience not only in preliminary surveys and levelling, but in the preparation, under his skilled tuition, of the working details and later on in visits to the works in progress.

Early Days in Pupilage.

His preliminary sketches, usually in water-colour, a medium in which he, like his father, excelled, were a delight. As pupils it was one of our valued privileges to be invited to gather round his board and hear him expound, as he worked, on the quality of pigments and their application.

A strict master, an indefatigable worker, and unsparing in his efforts to give his pupils the benefits of his wide experience and knowledge of all that matters in the study and practice of the profession he loved, he expected from his staff equally unstinting service.

It was our habit in the drawing office as the hour of six drew near to commence tidying our desks, and Watson would often at this inopportune moment appear and inquire somewhat caustically, "Well, gentlemen, are you waiting for the whistle?"

One of my most treasured possessions was an exquisitely fitted writing desk designed by his father in 1820 and given to me by Watson shortly before his death. This, alas! with many other valued mementoes of my old master, was destroyed in May, 1941, by an Austrian paperhanger.

For the ten years spent in Watson's office, first as pupil and later as chief assistant, my gratitude for his infinite patience and wise counsel cannot adequately be expressed.

Compared with the exceptional facilities for architectural education available in the recognised schools to-day, the articled pupil of half a century ago had to depend to no small extent for his acquisition of knowledge on the master to whom fate or good fortune assigned him. If fortune were kind, he gained in the atmosphere of a busy office an early and valuable appreciation of the many facets of general practice.

Four years with the late Frederick Walters, architect, antiquary and numismatist, gave me an opportunity of sharing in the preparation of drawings for Buckfast Abbey in Devon, and for the many other ecclesiastical buildings in the home counties on which he was engaged at that time.

It was in 1905, in an attic room in Queen Anne's-gate, and on the strength of a commission for a small country house in Surrey, that I embarked on the great adventure of private practice. The anxieties and struggles of those early days are but a dim memory, but the satisfaction of

building up a practice from small beginnings can never be forgotten.

In the years following, the Surrey hills provided an attractive setting for some large and small residences. William Webb, the author of "Garden First," was putting his ideals into practical form at Purley by planning and laying out Rose Walk, Silver Lane and South Border. This bold and far-sighted experiment on Webb's part, undertaken by him on a very conservative return on outlay, proved an unqualified success, and soon attracted the notice of discriminating purchasers for whom it fell to my lot to design many houses.

Work in Harley-street.

It is a far cry from the Surrey hills to Harley-street, and my time was divided during many years between the two. The problems set by the surgeons and physicians were very different from those to be solved in Surrey. Consulting and operating rooms had to be considered side by side with domestic requirements and nice adjustments made in planning to meet the varying needs of consultants. By intimate contact with the doctors, who know not an eight-hour day, I came to appreciate their devotion to their great profession, their kindliness and generosity to those whose ills were grievous but whose purses were scanty, and their unremitting fight against the senior practitioner Death, who, as Kipling said, in the long run is bound to win.

To illustrate the early growth of the popularity of Harley Street for consultants, I recall Soltau Fenwick telling me that his father was one of the first physicians to practise there, when rentals for each house were far less than for separate consulting rooms to-day. His father had what he described as the "medical sense," and his reputation grew so rapidly that the profession came to believe that the atmosphere of Harley Street was especially conducive to the development of practice, with the result that in succeeding years it became the Mecca of the consultant.

Fortune in the person of the late Earl of Eldon, the grandson of the Lord Chancellor, gave me the opportunity of making some additions to his great house of Stowell on the Cotswolds. The main fabric was Elizabethan, and both in structure and design a fine and restrained example of the period. The stone quarry from which the house was first built was still available, and the estate craftsmen, masons, carpenters and joiners were placed at my disposal. For upwards of two years, with visits by me every two or three weeks, the work went forward, and was watched at every stage with the closest interest by Lord Eldon, himself no mean craftsman and wood-carver. He would mount the scaffolding and, with his keen eye for good work, inspire everyone in his task. Some fine seasoned English oak was obtained from the port of Bristol, and this, with the masonry, was worked in sheds near the building.

Ironmongers' Hall.

Prosaic as many of the tasks which fall to the architect may be, he derives something of a thrill when in preparing foundations on an ancient site the excavations disclose relics of the past. Especially is this the case when the architect is commissioned to design a building intended to endure for centuries, as in my own case when appointed to build, near the old wall of London, a Hall for one of the twelve great City Companies. To find in the soil of the old City evidence of Roman occupation or some article of personal adornment of our mediæval forebears which has lain hid for centuries provides an exciting moment, not only to the architect and the builder but also to the workmen, somewhat encouraged perhaps in the latter case by promise of reward for any treasures unearthed.

When building the Hall, friendly contacts were established between the members of the Committee and the workmen by monthly visits during progress. No building could have been erected in which a better team spirit was displayed, with the result that everyone engaged, from the navvy to the sculptor and stained-glass artist, realised that they had an opportunity of proving that even in these days craftsmen, given the right encouragement, could produce work equal in every respect to that of their forefathers. In recognition of the work done and to celebrate the completion of the building the first banquet in the Hall was given to all the workmen and craftsmen employed thereon.

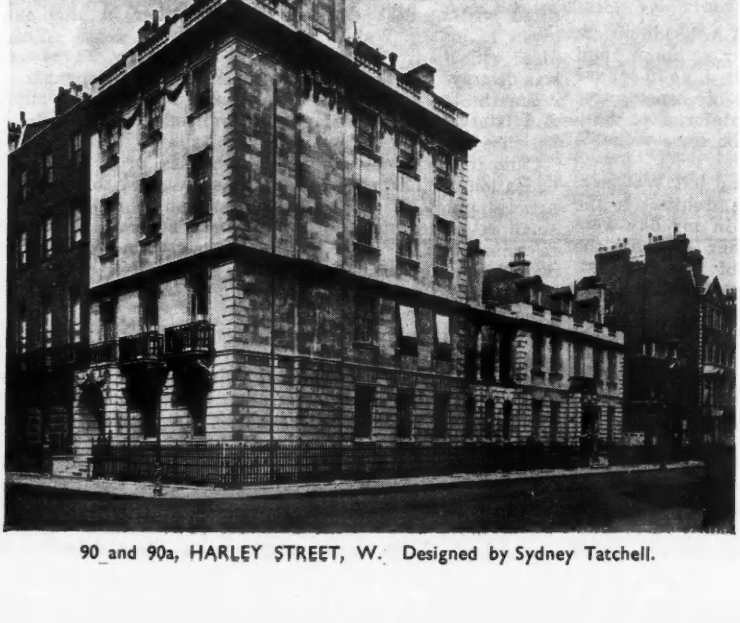
A similar demonstration of the value of team work occurred when the Corporation of London, on the retirement of Sydney Perks, appointed me to carry out the reconditioning of the Mansion House. The whole operation, comprising an additional storey, entirely new services, redecoration and refurnishing, had to be completed between one Lord Mayor's Day and the next. Progress charts, weekly meetings with all concerned and real co-operation successfully overcame all obstacles, with the result that the outgoing Lord Mayor, who throughout his official year had resided in an hotel, was able to give his final reception at the Mansion House.

If in these critical days the operative and craftsman could be permitted to return to his master builder instead of being directed to a vague, soulless and unimaginative organisation known as a "pool," the team spirit would again be restored and our great industry be thereby enabled to carry out the task of building which alone it understands.

In connection with my work at the Mansion House, and soon after its completion, I recall the occasion when the late King George and Queen Mary made a private visit of inspection. It was characteristic of the interest taken by the Queen in every department of a household that she expressed a wish to see the kitchen, and great was the delight of the staff when she talked with each one and displayed her very practical knowledge of the details of kitchen organisation and equipment.

"Inspiration" from Paris.

So often the client has a preconceived idea of his building. Many years ago a visit to Paris was imposed on me to study some over-decorated street façades as an "inspiration" for a house to be built not a hundred miles from Portland-place. When, however, the exterior treatment was under discussion, the only way in which the elimination of some florid and redundant carving was achieved was by my insistence in the alternative that an inscription should be boldly inscribed on the front elevation, "Don't blame the architect for this."



90 and 90a, HARLEY STREET, W. Designed by Sydney Tatchell.

Rejected for Army service, the outbreak of the war 1914-18 found me co-opted by the Admiralty for the erection of a power station at Newhaven, at that time the only port available for the dispatch of munitions of war to the Western Front. My respect for the Royal Navy in the person of Commander Garrett, who was in charge, increased hourly. His sense of proportion and his flair for organisation were superb and no emergency found him at a loss. One Sunday the sergeant in charge reported that some C.O.s who were transferring munitions from the railway to the ships declined to work on the Sabbath; Garrett's reaction was prompt and to the point, "No work, no food." The sergeant was soon back to report "All conchies working, sir." Whereupon Garrett turned to me with the remark, "Some people would have summoned a Cabinet meeting for this!"

It was during the preparation of plans for the National Library for the Blind in Westminster that I had to meet the late Lord Shaw of Dunfermline, the Chairman of the Executive, in his room at the House of Lords. Funds for the building were urgently needed, and in the course of our meeting his private secretary came in and in breathless phrases announced the offer from a prospective benefactor of the whole sum required. Lord Shaw, in his dry Scots speech, inquired "whether any condeetions were attached to the gift." The secretary somewhat hesitatingly explained that he thought that the donor hoped that possibly some honour might result, whereupon his chief, in even broader Scots observed, "Weel, ye can tell your friend that we are not feeshing in muddy watters!" Funds, however, were later forthcoming without any "condeetions," and the building was opened by Queen Mary. There was a touching moment on one of her visits when a blind girl had given a reading from Braille. A photograph of the incident was taken by the Queen's permission, and it was characteristic of her consideration that she warned the sightless child that there would be a slight explosion when the magnesium flash occurred, and added that she would stand beside her during the operation. Lord Grey of Falloden, whose sight was then failing, was also present, and he told me how great a comfort it was on a cold night for him to read in bed with a Braille book under the bedclothes.

To a valued friendship with the late Alfred Hudson, K.C., is due the opportunity I had of designing the Niblett Hall and other work for the Honourable Society of the Inner Temple. To this friendship also I attribute much activity as a technical witness in the High Courts, and there have been many amusing incidents which relieved the otherwise somewhat tedious hours. I recall a case before the present Lord Chief Justice, then Mr. Justice Rayner Goddard, when a witness examined in chief professed an intimate knowledge of building technique. After some subtle cross-examination the witness had finally to admit that his knowledge of building was scanty and that his real experience was confined to his former duties as official shorthand writer to the Court. Whereupon the Judge remarked, "Ah, Mr. Blank, I *thought* I remembered your face!" Needless to add, the Judge, Counsel and Court officials knew well to what anti-climax the unsuspecting witness was being led.

The earlier mention of Kipling reminds me of an incident when he opened the King's Junior School at Sturry Court, Canterbury. During tea in the headmaster's house a visitor approached him with the usual "How d'ye do, Mr. Kipling?" to which he replied, "Where was it?" For a moment the disconcerted visitor paused and then remarked, "Chatham." Kipling frowned, and in a second recalled the incident with the observation, "Ah! that drunken skipper and how eloquent he was after the bottle of whisky!" A less conventional opening to a conversation I have never known, but characteristic of a great man who had a deep-rooted dislike of mere formality.

Difficulties arising out of the building contract had in 1928 become acute, and a small group of architects and builders met together, under my chairmanship, in an attempt to find a solution, and the success of what is now so widely known as the R.I.B.A. Standard Form of Contract may justly be attributed to the early efforts of such men as Henry Holloway, A. H. Adamson, Sir Jonah Walker-Smith, the late Sir Stephen Easten, and G. H. Parker, on the builders' side, and Percy Thomas, James R. Adamson, W. E. Watson, Charles Woodward, and the late and greatly beloved Stanley Hall, representing the architects.

From the contacts made in the course of hammering out an acceptable document, the cordial relations now existing between the builders and architects may be said to have had their birth. The formation of the Building Industries National Council, of which the late Sir Raymond Unwin was the first president, and whom it was my privilege to succeed, still further strengthened a fuller understanding with the technical and professional partners in the industry, and, what is of equal importance, the co-operation of the building trades operatives represented by such men as Barron and Coppock.

Another piece of work in which it has been my privilege to take some part is the Registration Act. The year 1931 saw the fulfilment of a quarter of a century's effort on the part of the R.I.B.A. when the Bill for the Registration of Architects found its place on the Statute Book. No reference to this far-reaching and greatly needed piece of legislation would be complete without mention of the late Harry Barnes, to whose untiring energy so much of the success was due. Other names always to be associated with the measure are those of Sir Ian MacAlister, Sir Thomas Moore and Alfred Bossom.

By the deaths of Barnes, who became its first chairman, and MacArthur Butler, its first registrar, the Registration Council suffered a serious loss, but upon the sound foundations laid by them in those early years an organisation has been built up for which the profession in the future will have cause to be grateful.

Looking back through the vista of over forty years of a busy and varied practice, names and personalities crowd into one's mind. It is perhaps a truism to observe that knowledge of and friendship with one's fellow-men is the most valuable experience to be gained in any walk of life. In my own case an exceeding rich harvest of personal contacts has been garnered, and if out of this store the few recollections recorded should be of any interest to the reader, my task is rewarded.

PLYMOUTH RECONSTRUCTION

COMPULSORY PURCHASE OF LAND.

THE Minister of Town and Country Planning (Mr. Lewis Silkin) has received from the City Council of Plymouth an application under Section 1 of the Town and Country Planning Act, 1944, for an Order declaring 178 acres in the centre of Plymouth to be subject to compulsory purchase. The application is based on the ground that the area contains land which has sustained extensive war damage and should be laid out afresh and redeveloped as a whole.

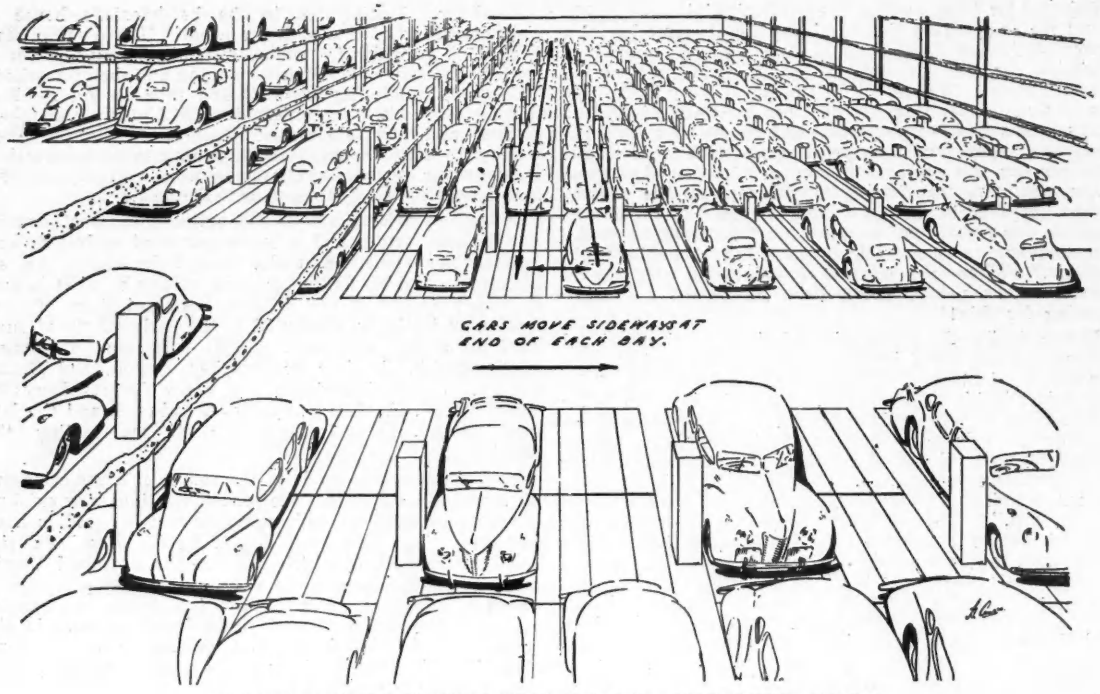
Mr. Silkin, at a Press conference, on January 17, stated that none of the "blitzed" cities had as yet applied to him for an Order under this section, and urged them to expedite their applications. This is the first such application to be made.

The area in question comprised before the war the business, shopping and central residential district of Plymouth. It extends northwards to the G.W.R. (North-road) Station; southwards to Citadel-road and the Hoe; eastwards to the Southern Railway (Friary) Station, and westwards to the Railway Bridge, Union-street.

The next step will be for the Minister to satisfy himself that the particulars given in the application are sufficient. Provided he is so satisfied, he will authorise the Council to advertise the fact that they have applied for the Order, and that their application is about to be considered by the Minister. Full particulars of the application must at that point be made available for public inspection; and objections can be made to the making of the Order during the 28 days following the appearance of the advertisement.

Mr. Peter Fraser, Hon. F.R.I.B.A.

THE RT. HON. PETER FRASER, P.C., Prime Minister of New Zealand, was presented with the Diploma of Honorary Fellowship of the Royal Institute of British Architects at a Council luncheon on February 12. Other war-time prime ministers who are Honorary Fellows of the R.I.B.A. are Mr. Churchill, Mr. Mackenzie King and Field Marshal Smuts.



THE BALDWIN-AUGER CAR PARKING SYSTEM AS USED IN A MULTI-STOREYED BUILDING.

MECHANICAL CAR PARKING

SOME ASPECTS AND SYSTEMS

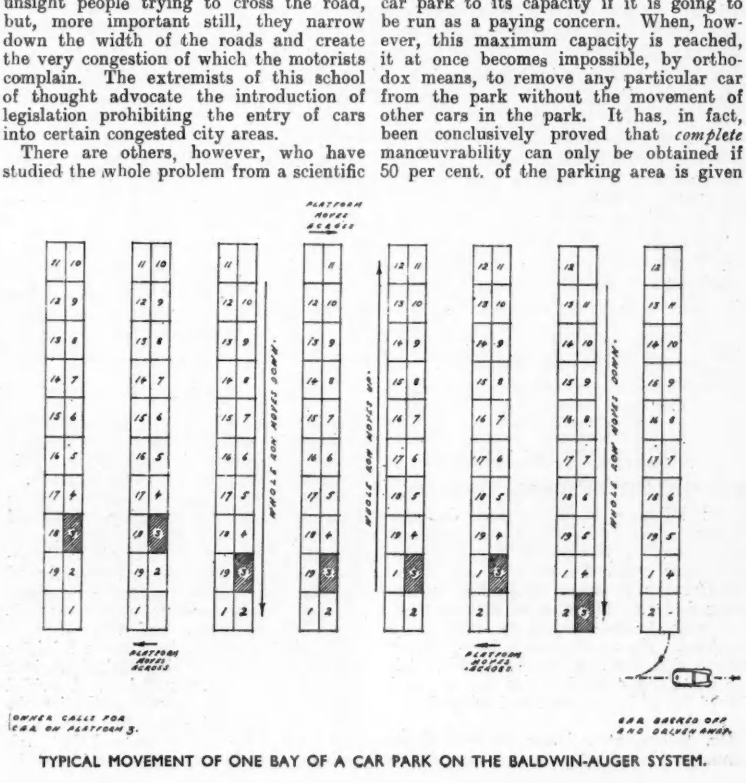
BY S. H. STATHAM, A.R.I.B.A., F.I.C.D.

WHEN the Minister of Town and Country Planning stated in a recent address that he had been investigating various types of mechanisation for parking cars, he touched upon a subject that has been occupying the minds of architects and engineers for many years. It is not, however, generally appreciated what designers have been striving to overcome when they have put forward ingenious schemes for what is now loosely known as the "Parking Problem." It is therefore essential that this problem should be fully understood before any attempt is made to describe some of the mechanised methods of parking cars.

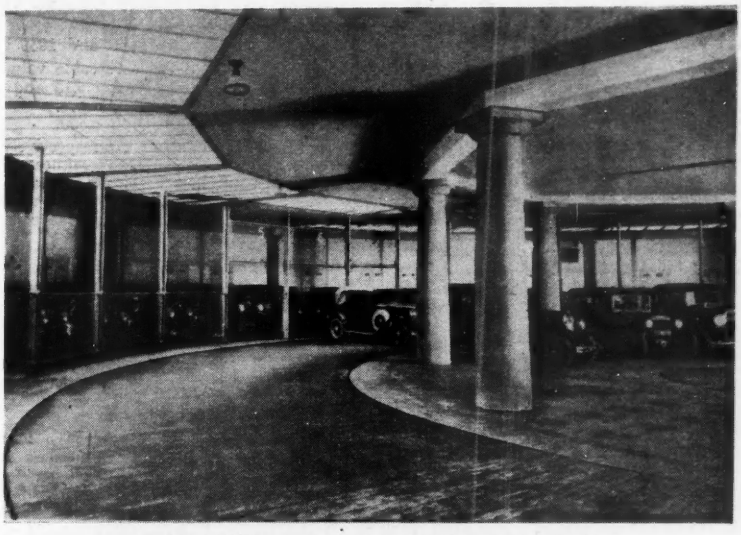
The problem can be divided into two distinct parts. First, as it is seen by the motorist and, secondly, as seen by the town planner, architect and local authority. Let us consider how the motorist sees what may quite easily become the limiting factor in the use of a car for business and general purposes. The motorist's claim is that present land values in the centre of the world's main cities are only high because the traffic can reach these centres. In other words, the streets are the arteries of the buildings and should, therefore, be wide enough to take the stream of traffic that brings business and prosperity to them, and be wide enough to accommodate standing vehicles. In support of this, it is possible to show examples of many American cities where careful research has proved that whole business districts have suffered because motorists have been unable to reach their destinations quickly because of congestion or have been unable to find anywhere to leave their cars when they have reached that destination.

The practical difficulties of widening most city streets are so great that planners and local authorities use this as their main argument for a different approach to the problem. They claim that standing vehicles increase road accidents as they unsight people trying to cross the road, but, more important still, they narrow down the width of the roads and create the very congestion of which the motorists complain. The extremists of this school of thought advocate the introduction of legislation prohibiting the entry of cars into certain congested city areas.

There are others, however, who have studied the whole problem from a scientific point of view, and have decided that orthodox methods of parking cars can never solve the basic difficulty of all car parking, which is that of the car capacity of a car park or garage competing with manœuvrability. In other words, if car parks are provided in areas where land values are high, it is essential to fill the car park to its capacity if it is going to be run as a paying concern. When, however, this maximum capacity is reached, it at once becomes impossible, by orthodox means, to remove any particular car from the park without the movement of other cars in the park. It has, in fact, been conclusively proved that *complete* manœuvrability can only be obtained if 50 per cent. of the parking area is given


PLATFORM MOVES ACROSS
MOVES ONE HOUSE DOWN.
MOVES ONE HOUSE UP.
MOVES THREE HOUSES DOWN.
PLATFORM MOVES ACROSS
PLATFORM MOVES ACROSS
OWNER CALLS FOR CAR ON PLATFORM 3.
CAR BACKED OFF AND DRIVEN AWAY.

TYPICAL MOVEMENT OF ONE BAY OF A CAR PARK ON THE BALDWIN-AUGER SYSTEM.

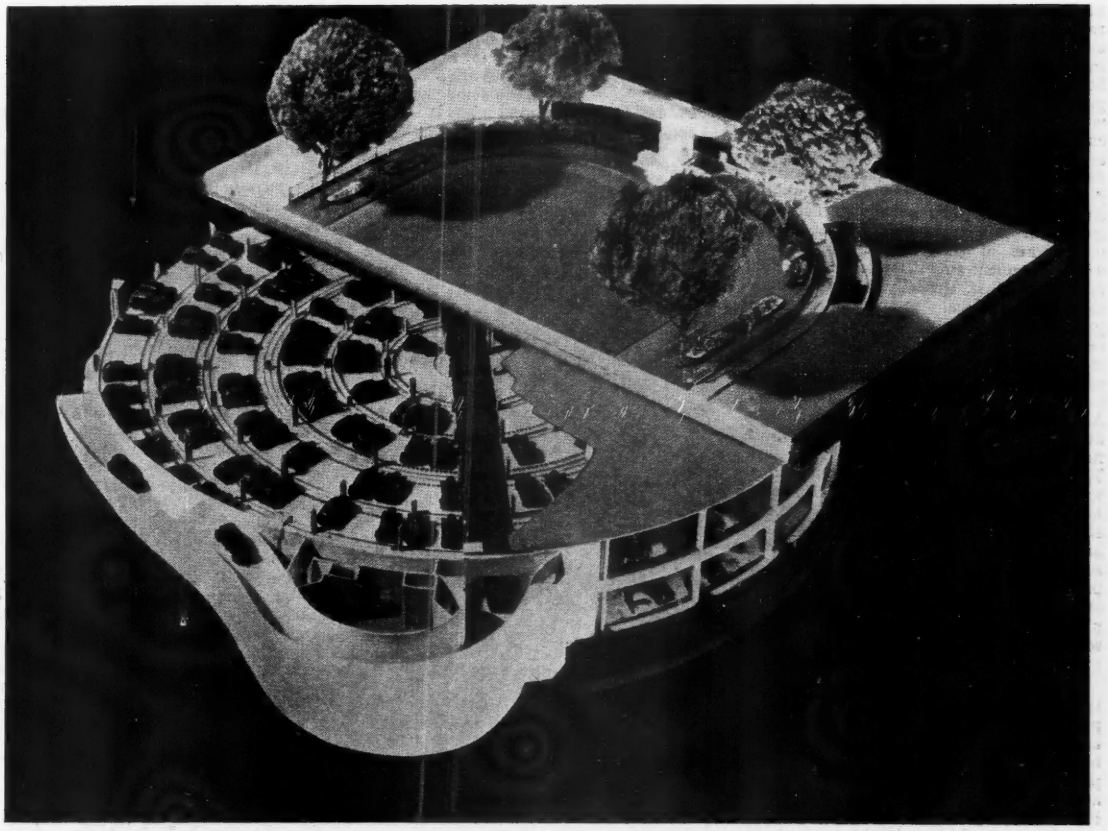


A RING-TYPE GARAGE IN OPERATION ON THE CONTINENT.

over to throughways, space between cars, ramps, etc. This then is where the designers of mechanical parking systems have endeavoured to apply scientific principles to these conflicting conditions.

These mechanical systems can be divided into three main types. First, those systems depending on various types of lift mechanism; secondly, those based on the rotary turntable principle; and, thirdly, the auto-actuated floor or moving-platform type of system. The first group contains an ingenious selection of schemes, some of which have been built and tried, and others which have progressed no further than the drawing board. The most practical and representative of this group is the "Westinghouse Vertical Parking Machine." Here cars are stacked one on top of another in order to get as many cars as possible on to a small site. The machine consists of individual cradles for each car supported between two endless vertical chains, acting on the Paternoster lift principle. These chains are electrically driven. With the chain operating at a speed of 100 ft. per minute, the average time claimed by the makers for a car to be returned to ground level is only 30 seconds. Twelve cars stacked on top of one another gives a car capacity of 24 cars on a site 16 ft. by 24 ft. This will be seen more clearly from the accompanying diagram. Other lift systems include the Simon patent endless chain garage, which is similar to the Westinghouse system, and made under that company's patents, the "Rev" electric garage and the Kent automatic parking garage. The recently announced "Storin-air" car parking system, made by Weldall and Assembly Co., Ltd., also works on this principle. With all these systems, although providing a large car capacity in relation to parking area, only one car can be delivered at a time from each unit.

The second group of systems consists of those based on the rotary turntable principle. This type of mechanism consists of a large ring-shaped turntable, which rotates in a similar way to the ordinary garage turntable. This ring is driven by electric motors. Cars are driven into the park on to the turntable and then brought to a standstill. The turntable is then revolved until the car is opposite a vacant parking space, when the turntable is stopped and the car driven into its parked position. The Panorama garage at Lucerne, in Switzerland, works on this principle, and also the Rotary Table garage designed by W. G. Glover and Drummond Bond, except that as the latter



MODEL OF A MECHANISED RING-TYPE CAR PARK.

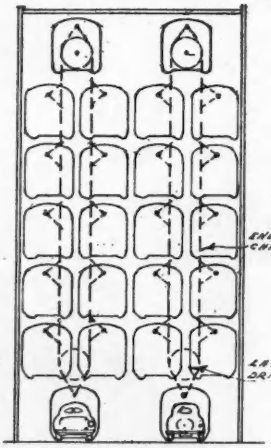
system was designed for use in underground car parks, access was by a centrally placed lift. Another make of mechanism based on the same design is the Pact system. It is obvious that, although ingenious, rotary turntables have a number of disadvantages. Any rectangular shape, such as a car, when placed in a radial pattern, involves the waste of space, and, in fact, most circular parking designs show that only 50 per cent. of the parking area is covered by cars.

The third main type of system includes all those designs based on mechanically driven moving floors. In the writer's opinion the most promising of these is the Baldwin-Auger method of parking, using "Auto Actuated Floor Space." It is understood that this was one of the methods to which the Minister of Town and Country Planning referred in the part of his speech which dealt with actual methods of mechanical parking [reported in *The Builder* for January 11]. It is of added interest, also, to note that three underground car parks were started at the beginning of the war to the design of Sydney Clough, Son and Partners, architects, which incorporated the Baldwin-Auger system. These were at Finsbury-square, London, Cardiff, and Kingston-on Thames.

The general layout and operation of the Baldwin-Auger system is as follows :—

Power-driven rolling platforms, each one car space in size, are laid on the floor of the car park or garage in bays two cars wide and usually up to twenty car spaces in number. To a twenty-car-space bay, however, only nineteen platforms are fitted. This space allows the platforms to be moved round the bay in any direction, an ingenious cross-over at the end of each bay sliding the platforms sideways as they reach that position, thus leaving another clear space for the next platform to come into position. This cycle of operations can be more clearly followed from the diagram on page 186. The car platforms, which are mounted on rollers running in channel rails, are actuated longitudinally as a train with automatic couplings, driven by an electric motor centrally placed. At the ends, the couplings automatically disengage and transfer the movement to a transverse direction. The motors are of simple squirrel-cage type with consequent simplicity of control. The driving load is specially accepted by a robust mechanical compensator, which provides absolutely accurate position registration at the start and finish of each movement. Control is effected by a dial similar to the normal telephone equipment, which will select any car demanded. As this mechanism is only 8 in. in depth, it is quite easy to obtain a flat floor surface throughout the park. This feature also enables the mechanism to be laid on suspended floors, and therefore makes it possible to construct a multi-storeyed garage with all floors fully mechanised. It is clear that a system such as this, which enables cars to be parked "solid" over practically the whole of the parking area and yet retain complete manœuvrability, goes a long way to solving what it is agreed is the basic problem of car park and garage design.

In this article it has only been possible to deal with one aspect of the parking problem—that is, to what degree can mechanisation be used to overcome the basic difficulties in the design of the car park and garage buildings. The provision and siting of these parks and buildings is but another part of the whole problem that has to be faced. Without going into further detail, it is clear that whatever form car park buildings take, whether mechanised or not, their early provision is essential. Unless they are provided, the congestion and traffic delays, coupled with increases in the road accident figures that are sure to occur, will give unanswerable proof to those planners who already contend that wide areas of our main cities should be closed to wheeled traffic. We have only to look, as often before, to ancient Rome for a precedent for this latter action. There traffic congestion became so bad that, under the Tabula Heracleenis, the driving of wheeled traffic in the city during the first ten hours of the day was forbidden. The only exceptions to this rule were the chariots of victorious generals and carriages bearing Vestal Virgins. To-day, the number of persons claiming immunity under the same conditions would be very small indeed!



TYPICAL SECTION THRO' ENDLESS CHAIN LIFT TYPE OF CAR PARK.

SPACE for 24 CARS

CORRESPONDENCE

Housing Subsidy.

To the Editor of *The Builder*.

Sir,—I feel that the leader in last week's issue fails to recognise the purpose of the housing subsidy. You state that, in the six years before the war, four unsubsidised houses were built for every one that received a subsidy. This is true, but it is also true that for every house built for the working class, which needed them desperately, four houses were built for the middle classes, which did not need them nearly so much. In fact, this market was showing signs of saturation.

The war years, when there was virtually no house building, have produced a situation in which all classes are once more in need, but the working class is still far worse housed than any other. There may be grounds for criticising the Housing Bill because it does not go far enough, but it is difficult to see how it can be criticised for not seeking to re-establish the ill-adjusted pre-war position—except by those who put speculative building before national welfare.

London, N.W.3. Colin Penn.

***We cannot accept Mr. Penn's implication that the houses built by private enterprise were exclusively for the middle classes. The following statistics, taken from Marian Bowley's book "Housing and the State," indicate that private enterprise was the largest provider of working-class houses.

Houses built between 1935 and 1939	
of a rateable value below £13 p.a.	of a rateable value between £13 and £26 p.a.
480,900.	672,300.

Of these 189,000 and 140,500 respectively were built for letting. The weakness of the subsidies Bill in our opinion is that it assumes that all the working-classes wish to occupy a house subsidised by the community at large.—Ed.

The Black-Coated Worker.

To the Editor of *The Builder*.

Sir,—Mr. H. C. Conway, in your issue of February 15, suggests that clerical staffs in the building industry should join the operatives' union, and so bring their wages into line with the increased cost of living. I am afraid it is not so easy as that.

Office workers of all kinds have long been notorious for their unwillingness to organise. That is the basic reason for their bad pay. Even assuming that a few of them were accepted into membership by the operatives' unions, there would be no possibility of obtaining automatic increases. No union, however strong, can win improvements unless a really substantial proportion of the staff in question is organised. If the old tradition of disorganisation can be ended, then office workers will have taken the first step towards improving their conditions. There will be no need for them to seek to join the operatives' unions; there are much more appropriate unions waiting to take them in—for clerical workers the Clerical and Administrative Workers' Union; for technical workers, my own union, the Association of Building Technicians.

E. V. Penn,
Association of Building Technicians.
London, S.W.1.

To the Editor of *The Builder*.

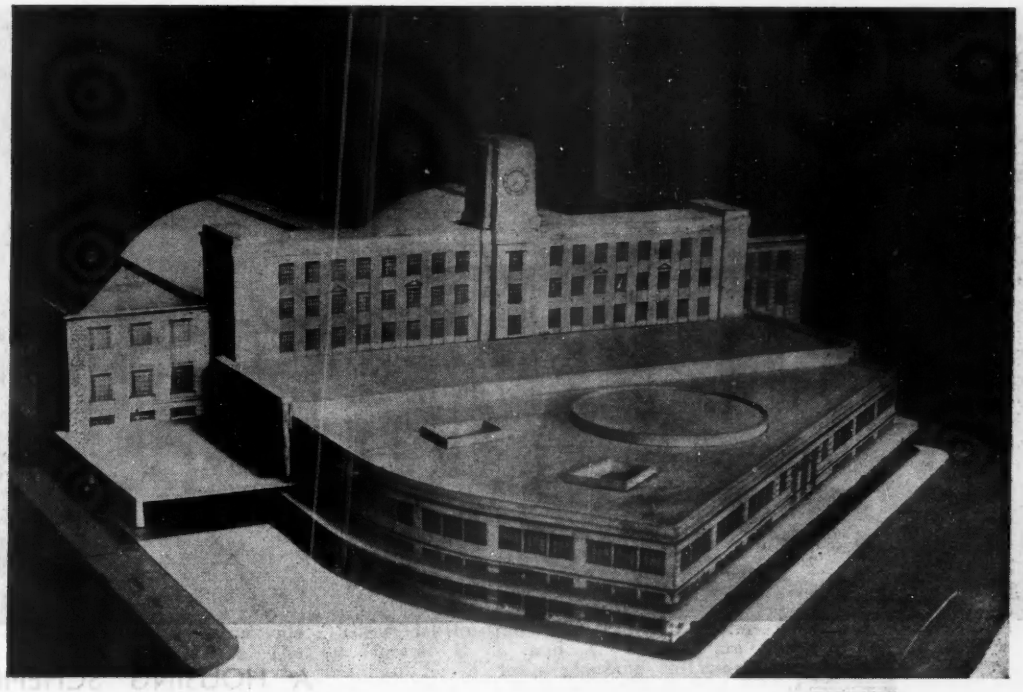
Sir,—Your correspondent, Mr. Conway, can be assured that there is a union catering for the office worker—the Clerical and Administrative Workers' Union.

The remedy for poor wages and conditions in offices lies entirely in the hands of those working there. It is manifestly wrong to expect building—or any other manual—(I use the term "manual" in its accepted connotation, with no sense or intention of inequality) workers to come to the aid of the office workers if the latter are completely idle in their own interests. Why should building workers give a thought to office workers if the latter don't think of themselves—or at least do nothing to make their thinking effective?

H. Heumann,
Statistical and Research Dept.,
National Federation of Building Trades Operatives.
Albury, Surrey.

Probationership R.I.B.A.; Special Applications

After March 31 all candidates for the probationership of the R.I.B.A. will be required to submit certificates of having passed recognised examinations, and it will no longer be possible to submit special applications as has been the case for those who started their full-time architectural education or joined the Armed Forces before June 30, 1943. Special applications may, however, be submitted after March 31 by applicants serving with H.M. Forces overseas who produce evidence that they have been prevented from making their special applications by March 31 by reason of their overseas service.

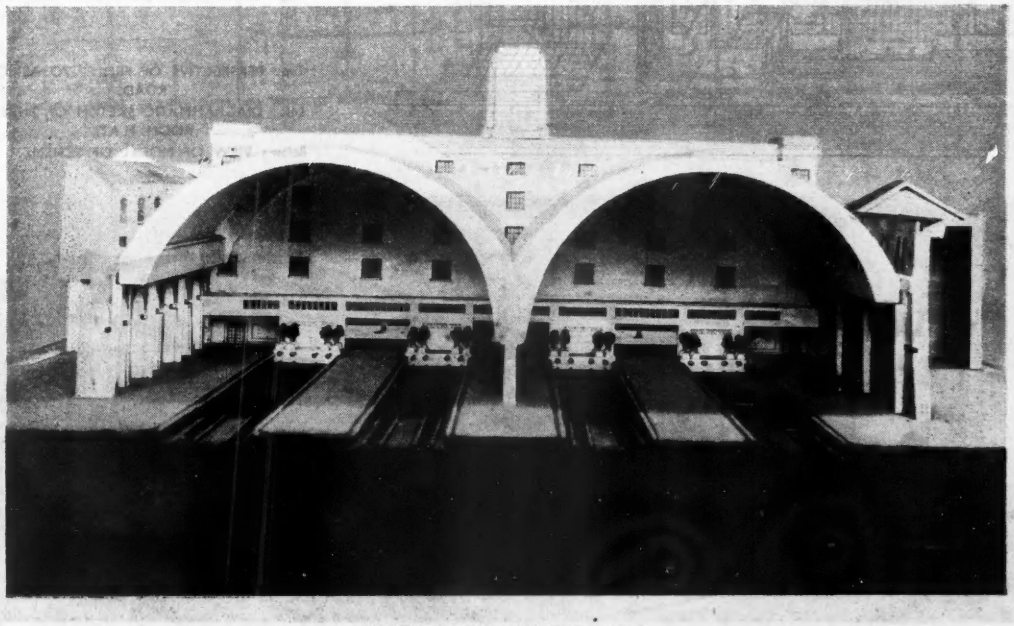


VIEW OF MODEL, AS SEEN FROM THE EUSTON ROAD.

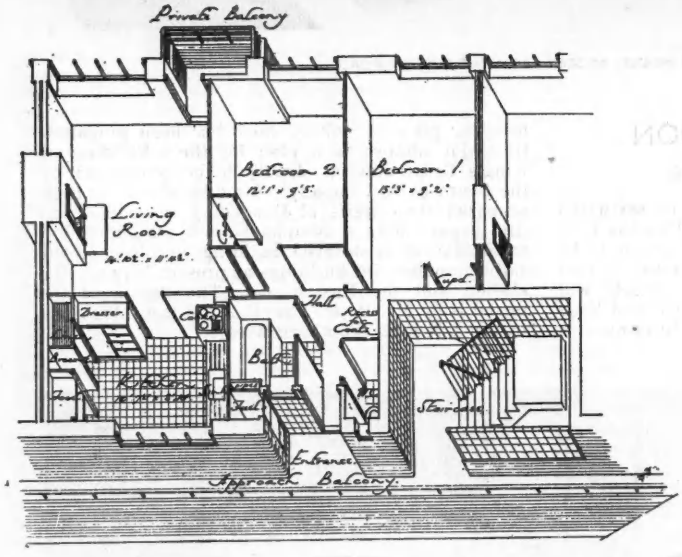
KING'S CROSS STATION

A REBUILDING SCHEME

DEVELOPMENT PLANS FOR THEIR SYSTEMS ESTIMATED to cost £50,000,000 are being considered by the London and North Eastern Railway. Priority is to be given to a four-track electrification scheme from Liverpool-street to Shenfield, Essex, which will mean a 75 per cent. increase in suburban and long-distance traffic entering the London terminus. A five-year plan for rolling stock has been prepared. Of major interest is a plan for the rebuilding of King's Cross Station, shortly to be considered by the Board of the company. A model which has been prepared (two views of this being reproduced on this page) shows a completely new station and a triangular three-storeyed building in place of the rather nondescript buildings at present between the station and the Euston-road. The design of the model is by Mr. H. H. Powell, A.R.I.B.A., Architect to the L.N.E.R. (Southern Area).



SECTIONAL VIEW FROM THE TRACKS.

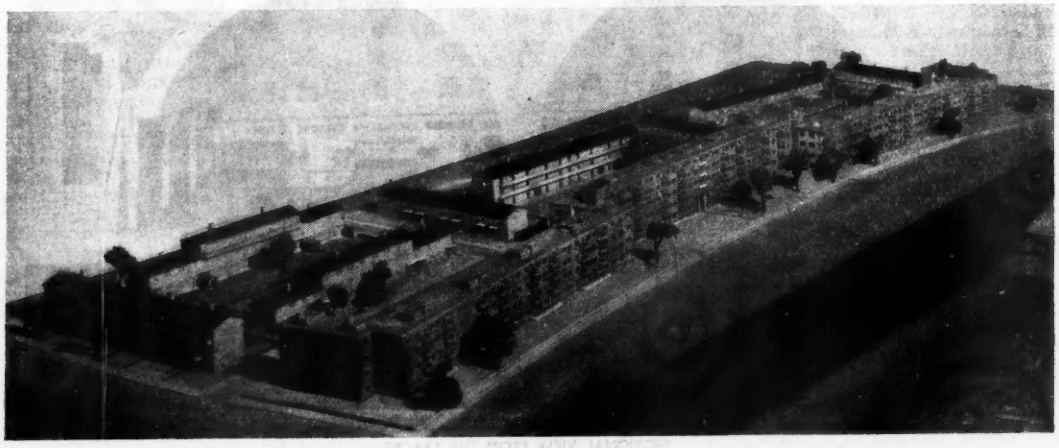


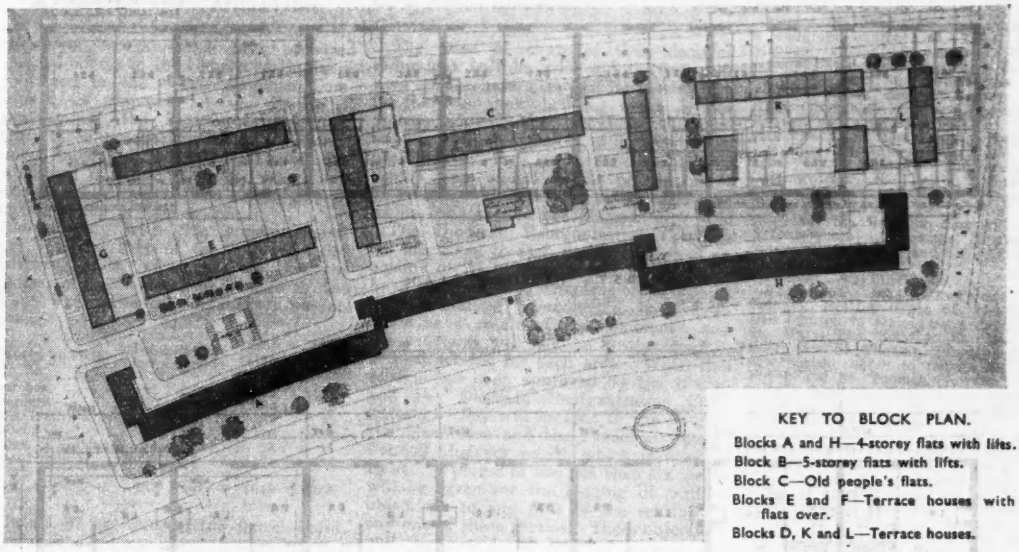
A HOUSING SCHEME AT HAWKSLEY ROAD, STOKE NEWINGTON

HOWES & JACKMAN, FF.R.I.B.A., ARCHITECTS

THIS IS A SCHEME OF MIXED development of flats and houses on a bomb-damaged site. The first portion of the scheme, comprising about two-thirds of the area, involves the closing of an existing road and provides for the

Top: PERSPECTIVE OF FRONT TO ALBION ROAD.
Left: DIAGRAMMATIC SKETCH OF 2 BEDROOM FLAT.
Below: VIEW OF MODEL OF SCHEME.



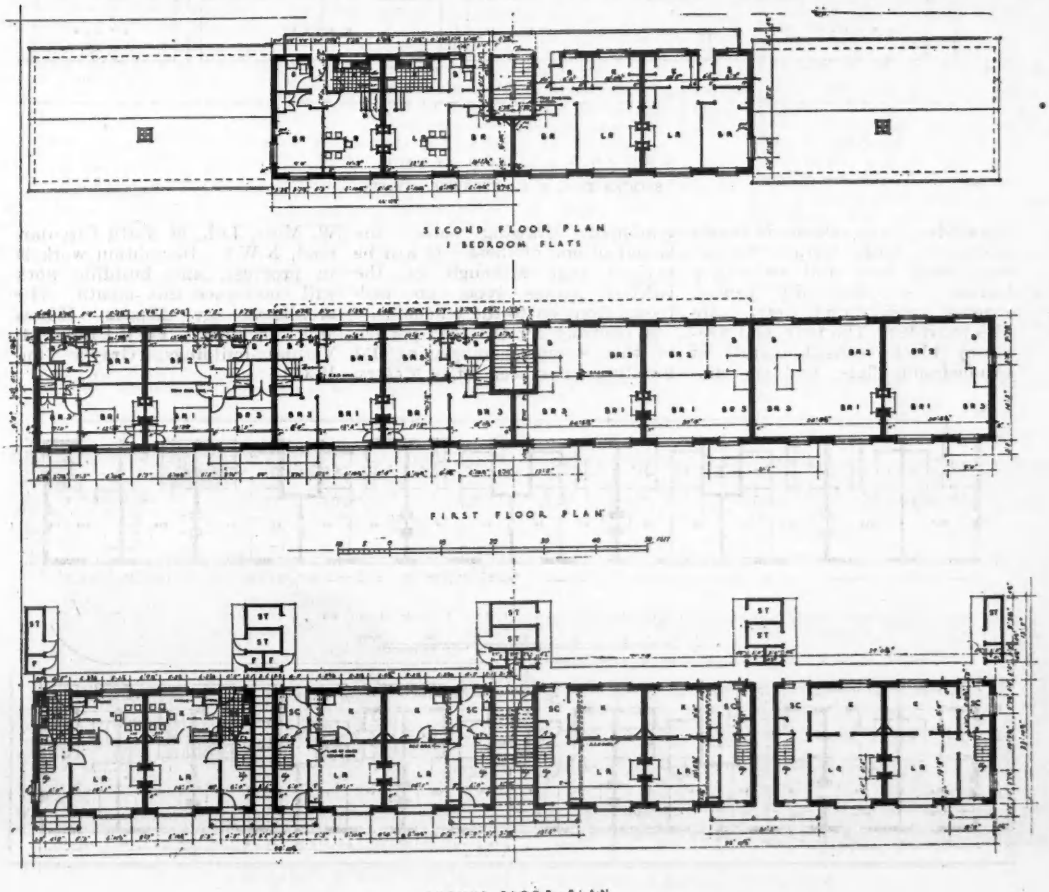


KEY TO BLOCK PLAN.

Blocks A and H—4-storey flats with lifts.
Block B—5-storey flats with lifts.
Block C—Old people's flats.
Blocks E and F—Terrace houses with flats over.
Blocks D, K and L—Terrace houses.

erection of 167 flats and houses. The scheme has been designed to extend southwards to provide another 64 flats and houses. The area of the first portion of the site is 5.35 acres, and of the whole site 7.6 acres.

The model illustrated was made by Messrs. E. J. and A. T. Bradford for a town planning exhibition, and shows the scheme when completed. The four- and five-storey blocks of flats with lifts are provided on the wide Albion-road frontage. The



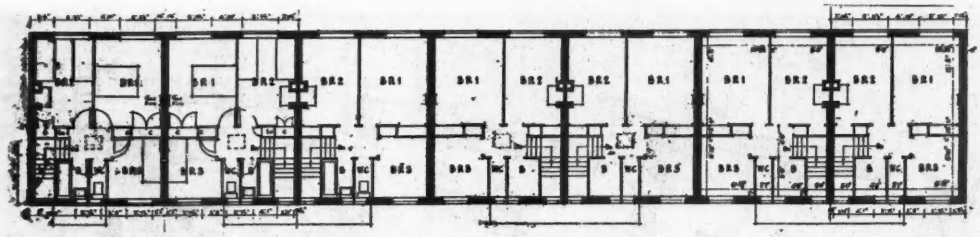
SECOND FLOOR PLAN
1 BEDROOM FLATS

FIRST FLOOR PLAN

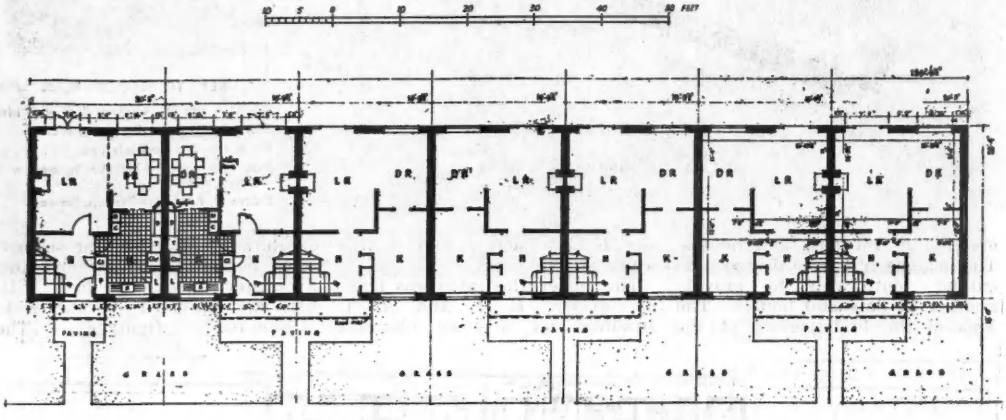
GROUND FLOOR PLAN
3 BEDROOM HOUSES

PLANS OF BLOCKS E & F: TERRACE HOUSES WITH FLATS OVER.

A HOUSING SCHEME AT HAWKSLEY ROAD, STOKE NEWINGTON, N.16.



FIRST FLOOR PLAN

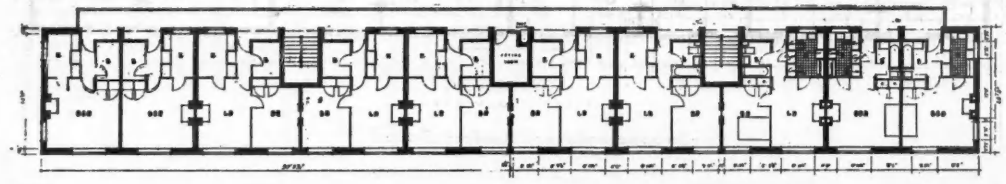


GROUND FLOOR PLAN

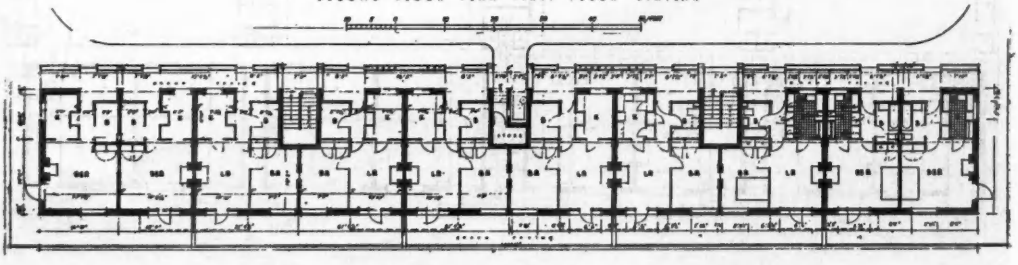
BLOCKS D, K & L: TERRACE HOUSES.

remainder of the scheme is shown developed with terrace houses with flats over and two-storey houses. A community centre, covered playground, etc., are also provided. The four- and five-storey blocks consist mainly of two-bedroom flats, and the diagrammatic drawing shows the layout of one of these. It will be noticed that although of the balcony access type, no bedrooms front on to the balconies.

A contract for the first portion of this scheme, comprising 151 dwellings, has been let to Messrs. W. Moss, Ltd., of North Circular-road, N.W.2. Demolition work is in progress, and building work will commence this month. The architects are Messrs. Howes and Jackman, FF.R.I.B.A., 1, Verulam-buildings, Gray's Inn, W.C.1.



SECOND FLOOR PLAN FIRST FLOOR SIMILAR



GROUND FLOOR PLAN

BLOCK C: OLD PEOPLE'S FLATS.

A HOUSING SCHEME AT HAWKSLEY ROAD, STOKE NEWINGTON, N.16.

DIOCESE OF LONDON

SCHEME OF REORGANISATION

WHAT is probably the most far-reaching scheme of reorganisation ever prepared for any diocese in the Church of England, or indeed in the whole Anglican Communion, is proposed for the diocese of London. If the scheme is accepted, eighty-three parishes, including the world-famous parish of St. Clement Danes, will be merged in other parishes. Many new parishes will be created in the large new housing areas of the diocese.

Coincidently with this announcement, it is revealed that of the total of 2,258 churches, halls, vicarages, etc., in the diocese, only 266 escaped damage in the recent war. The full details are as follows :—

Class of building.	Total loss.	Severe damage.	Less extensive damage.	Not damaged.
Churches	91	78	455	77
Vicarages	39	33	382	75
Halls, Institutes, etc.	50	37	339	45
Schools	36	25	170	19
Houses of Residence	4	3	28	16
Other buildings ..	37	11	174	34
	257	187	1548	266

In all, 87 per cent. of the church buildings in the diocese were damaged—more than 10 per cent. being total losses.

Reorganisation.

The figure of 83 parishes which may cease to exist as separate parochial units takes no account of the City of London, for which the former Bishop of London appointed a special Commission on City Churches, which has not yet completed its Final Report.

Among these 83 churches there are very few of outstanding historical or architectural merit, but at least three are well known :—

St. John, Red Lion Square, was an exceptionally beautiful example of Pearson's work, but it has been very extensively destroyed and would have to be almost entirely reproduced rather than restored.

St. John of Wapping was an 18th-century parish church of East London, but with the exception of the tower has been completely destroyed.

St. Anne, Soho, was an interesting 18th century church, but has been very extensively damaged.

In some instances the churches will remain although the parish will be united with a neighbouring one :—

St. Peter, Vere-street; St. Columba, Haggerston; St. John, Smith-square, Westminster; St. George, Campden-hill; Emmanuel, Maida-hill; St. Clement Danes; St. John, Isle of Dogs; Christ Church, Down-street.

General.

The sites of churches thus declared redundant will be sold and the proceeds used to purchase sites and build churches in the vast new housing areas in the diocese which either developed between the wars or are expected to develop in the near future. It is estimated that 850,000 people were added to the population of Middlesex between the wars, and the whole county is in the diocese.

The Diocesan Reorganisation Committee has given to each parish concerned an outline of its proposals, and the parishes have been asked to comment on them. In some instances amendments have been made as a result of the comments, and the proposals will now be incorporated in a legal scheme for each area. When this scheme has been approved by the Bishop and the Diocesan Reorganisation Committee, a copy will be sent to the Patron, the incumbent and the Parochial Church Council of every parish which is affected by it. A period of not less than six weeks will be given for the lodging of written objections to any part of the scheme by any one of these parties. These objections will be considered by the Bishop, the Reorganisation Committee, and the Ecclesiastical Commissioners, and if agreement cannot be reached, the matter will be referred to what is known as a Special Committee, set up under the Measure in such a way that it is entirely impartial and will act, not for one particular diocese, but for the whole Province of Canterbury. If no objections are raised to the scheme, or if any objections are met by a revision of the scheme or disallowed by the Special Committee, the scheme will then be sealed by the Ecclesiastical Commissioners and become operative on the date to be fixed in the scheme.

LIST OF PARISHES *which it is proposed should cease to have independent Parochial Status* :—

Bethnal Green : St. Philip, St. Jude, St. Matthias, St. Paul, St. Simon and St. Thomas.

Finsbury : St. Paul, Clerkenwell; St. Barnabas, King-square; St. Mary, Charterhouse, and St. Matthew, City-road.

Holborn : St. Peter, Saffron Hill, and St. John, Red Lion-square.

Hackney : Christ Church, Clapton; St. Bartholomew, Dalston; St. Philip, Dalston; Christ Church, Gore-road, and St. Augustine, Victoria Park.

Stoke Newington : St. Faith and St. Matthias (to be replaced by one new church).

Islington : St. Barnabas, Harvist-road; St James, Holloway; St. Matthew, Essex-road; St. Philip, Arlington-square, and St. Thomas, Barnsbury.

Poplar : St. John, Isle of Dogs (to remain as a daughter church); St. Luke, Millwall; St. Stephen, Poplar; St. Andrew, Bromley; All Hallows, East India Dock-road; St. Frideswide; St. Gabriel; and St. Stephen, Bow.

Shoreditch : St. Andrew, Hoxton; St. Columba, Haggerston (church to be preserved); St. Mary, Hoxton; St. Saviour, Hoxton; St. Stephen, Haggerston; St. Mary, Haggerston.

Stepney : St. James, Ratcliff; St. John, Limehouse; Christ Church, Watney-street; St. John, Golding-street; St. Faith, Shandy-street; St. Augustine, Settles-street; St. Benet, Mile End; Christ Church, Jamaica-street; St. Luke, Burdett-road; St. Matthew, Stepney; St. Thomas, Arbour-square; All Saints, Buxton-street; St. Mary, Whitechapel; and St. John of Wapping.

Chelsea : St. John.

Fulham : St. Etheldreda.

Kensington : SS. Andrew and Philip; St. Columb, Notting Hill; St. George, Campden Hill (church to remain as a daughter church); St. Mary The Boltons; St. Matthias, Earl's Court, and St. Thomas, Kensal-road. N.B.—One new parish church to replace SS. Andrew and Philip and St. Thomas.

Paddington : St. Jude, Kensal Green; St. Luke, Tavistock-road; St. Paul, Paddington, and St. Simon, Saltram-crescent.

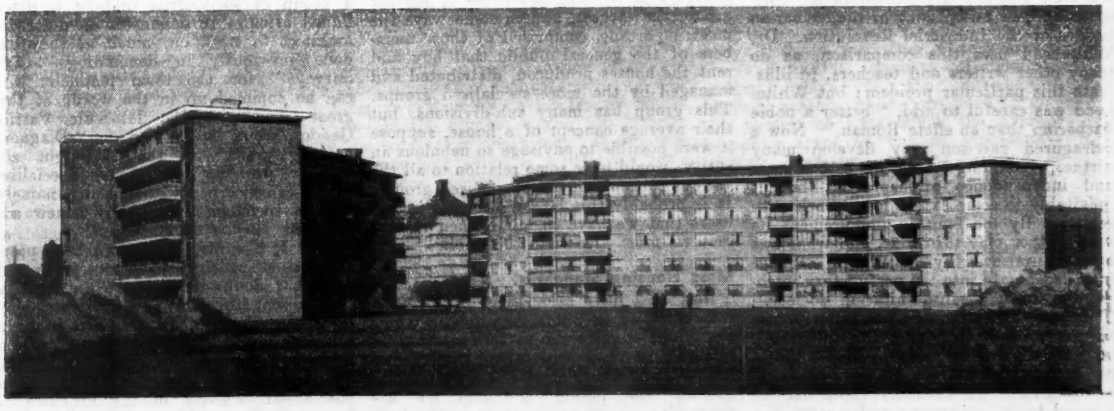
Westminster : St. Andrew, Ashley-place; Christ Church, Victoria-street; St. John, Smith-square (church to be restored for a special use); Holy Trinity, Vauxhall Bridge-road; St. Anne, Soho; St. Clement Danes and St. Mary-le-Strand (churches to be preserved); St. Peter, Gt. Windmill-street, and Christ Church, Down-street (church to be preserved as a daughter church).

St. Marylebone : St. Peter, Vere-street (church to be preserved as a daughter church); St. Barnabas, Bell-street; Emmanuel (church to remain as a daughter church); St. Luke, Nutford-place; St. Matthew, Maida-hill, and St. Stephen, Avenue-road (church to be given over to a special use).

St. Pancras : St. Andrew, Haverstock-hill; St. Barnabas, Kentish Town; All Saints, Camden-street; Christ Church, Somers Town; St. James, Hampstead-road; St. John, Fitzroy-square; St. Peter, Regent-square.

The Late W. H. Overton, F.R.I.B.A.

THE death has taken place of Mr. William Henry Overton, F.R.I.B.A., F.S.I., of Brighton, at the age of 66. More than 40 years ago he set up his office in West-street, and in 1927 went into partnership with Mr. P. G. Massey. Together they planned many buildings in Brighton, including the extension to the Royal Alexandra Hospital for Sick Children which was opened by the King and Queen, then Duke and Duchess of York. Mr. Overton was one of the five architects commissioned by the Council to plan the Moulscombe housing estate. He was Governor of the Brighton School of Art from 1930 until last year, and was also one of the founder Directors of the South Coast Building Society.



FOUNT STREET HOUSING SCHEME, LAMBETH, S.W.8.

The perspective shows two blocks of a housing scheme of 70 flats in five-storey blocks with lifts, the foundations of which were completed shortly after the outbreak of war. The contract for the superstructure has been placed with Messrs. Higgs and Hill, Ltd., at £89,861. The architects are MESSRS. HOWES & JACKMAN, FF.R.I.B.A.

HOUSING—THE ARCHITECT AND THE PUBLIC

AN ADDRESS BY MR. STANLEY RAMSEY.

THE following paper was read by MR. STANLEY RAMSEY, F.R.I.B.A., to a meeting of the Birmingham and Five Counties Architectural Association on February 15 :

Why is it that when a person discovers that one is an architect it is so frequently assumed that one is mainly interested in the design of houses? To answer this question fully would take far longer than the time at my disposal, and would be more than your patience would allow. But I will endeavour to-night to deal, however inadequately, with a few relevant issues that the question raises.

First, the English are "domestic animals" to a greater degree than any other nation. The adage that "the Englishman's home is his castle" is more truthful than a good many popular sayings. The architecture, even of our most important and impressive buildings, has something of the domestic about it. It is tacitly assumed by many of the public that we design all the houses that are built, and to our chagrin are not infrequently asked to explain certain faults and mistakes in the worst of our housing when it should be obvious, even to the least instructed, that no architect was concerned with the houses which are the subject of criticism. But here again, unfair as such strictures are, they contain an implied criticism of the profession which we cannot altogether escape. It is this : either we have not sufficient influence with the public to ensure that architectural standards are maintained, or we are negligent in exercising such influence. The truth probably lies somewhere between these two extremes. Every architect would say that he has not sufficient influence; but, taking a wide survey of our opportunities, do we always exert what influence we have and to the fullest extent?

Are we as united as we might be, or do we allow our sectional interests and prejudices at times to hinder the effectiveness of our corporate influence? Further, do we always take that active interest in the affairs of our neighbours that we expect them to take in ours? It has been said that during the nineteenth century the cultured interests, of which architecture is one, could be likened to a beleagured garrison driven behind its walls of defence by an uprising of the barbarian hordes of the Industrial Revolution. Dr. Whitehead uses this comparison, as do many other writers and teachers, to illustrate this particular problem; but Whitehead was careful to add, "better a noble barbarian than an effete Roman." Now a beleagured garrison may develop many virtues, including those of self-reliance and independence of character, but it inevitably to some extent loses touch with reality. By too long an immurement its very virtues may turn sour, and what was once a praiseworthy gesture of defiance may degenerate into the perfunctory introduction to a "self-admiration society." This was, I think, more particularly true of the profession during the nineteenth century than it is to-day. The "Battle of the Styles" and all the empirical adventures of the various revivals may be likened to the diversions and sorties of a beleagured garrison. One of the most noticeable developments of the twentieth century has been the growing recognition in all spheres of activity of the importance of public relations, which is giving practical effect to the recognition of the fact that we are all members of a community.

Growth of "Public Relations."

Effective relations with the public means something far more than mere publicity or propaganda. There is a two-way action, or, if you prefer it, action and reaction, showing what the public requires from the profession and the profession from the public. In order to define our objective we should have to recognise that, except in a very general sense, there is no such thing as "the public." There are various groups and stratifications of the community varying in age and environment, both social and physical. Some of these groups represent specialised activities which are important because they spearhead public opinion on to a circumscribed target making for clarity of apprehension. To apply this argument to the subject under discussion, *i.e.*, housing, let us consider some of the groups which are particularly concerned with housing as groups of specialised activities. These may include architects, house-builders, estate agents, housing managers, and building society executives, etc. Each group has a different concept of what a house is, according to the group's particular interest. Further, there may be varying concepts within the same group, as, say, between the younger and older members of the architectural profession. Again, there may be a difference in time appreciation between the average concept of one group and another. For example, the house-builder may have an architectural concept of a house that the architects, taken as a group, had discarded thirty years before, though his "social" concept may in certain respects be in advance of the architects'. These average concepts are always changing, and it is above all the purpose of public relations to obtain the necessary cross-sections. A popular phrase in architectural circles, particularly with those who are, or who are becoming, interested in public relations, is that "we must educate the public."

If we take a purely ontological, that is an abstract, view of architecture, then we know that architecture, like music, painting, literature, or any of the arts, has its own laws which must be obeyed. But any abstraction is only a partial truth. Architects have some definite notion when they say that a particular building is "architectural," as have musicians when they use the term "musical." Beyond the groups I have indicated there is another group, the largest, and in some ways the most important, comprised of those members of the general public that buy and rent the houses produced, distributed and managed by the more specialised groups. This group has many sub-divisions, but their average concept of a house, suppose it were possible to envisage so nebulous an entity, would have some relation to all the various concepts of the specialised groups. It is probably this larger group of house-users that we have in mind when we say that we must "educate the public."

Mass Housing Standards.

But, as I have said, there is always a reverse action in public relations in which the public educate the profession—that is, indicates its requirements and preferences. There is not much harm in setting out to educate the public, provided we are responsive to the stimulus that the individual architect, as artist, can receive by placing himself in the position of allowing himself to be educated by the public.

When we are building a house for an individual client this is not very difficult, but when we have to provide mass housing through the agencies of local authorities or private enterprise the problem is much more complex.

Mr. Howard Robertson, in his recently published book, "Architecture Arising," very neatly outlines this problem in the following passage :—

"Domestic architecture over a wide field is the most difficult of all branches of architecture. It is based on the minutiæ of living, and requires a knowledge of popular habits and preferences which no amount of questionnaires and polls ever seem to crystallise into a valuable compendium of what to do and what to avoid. It is comparatively easy for the architect to obtain information about the habits of life of a private client; but in public housing, where widely varying customs in different parts of the country are bound to act on arrangement, the architect cannot hope to satisfy the needs of every family. If, however, he can design a house from which imitation and heart-break are vanished, as satisfactory in its way as a Morris, Austin, or Ford car, he will have achieved something very tangible. Some houses may have more 'pep,' others be more dependable. But they should, and could, all have a minimum standard of performance."

Now in these words Mr. Robertson has posed a problem which he has, I suggest, only partially answered. I doubt whether the architect can by himself ever arrive at the answer; indeed, I would go further and say that it is the province of the sociologist rather than the architect to attempt such answer.

It has recently been my privilege to attend a conference "On Human Needs in Planning," convened by the R.I.B.A., the Institute of Sociology, and the Association for Planning and Regional Reconstruction, held at 66, Portland-place, in which an attempt was made to formulate some of the prerequisite conditions which would enable the architect to deal adequately with this problem of housing. Papers were read on such diverse subjects as "The Social Function of Towns," "Housing Requirements and Population Studies," "Population Composition and Demands for Housing," "Types of Families in Great Britain," "Research and Location of Industry," "The Spheres of Influence of Institutions in Urban Areas," "A Consideration of Social Relationships in Towns, with Reference to the Neighbourhood Unit," etc. Here we have a group of sociologists making a determined attempt to define the field for the architect to work on, much as they had done previously in demanding "Civic Surveys" for the town planners. All can be summed up in the words of that great sociologist the late Sir Patrick Geddes, when he insisted on "Diagnosis before Cure." So that I might add another to my group of specialised activities concerned with housing, namely, that of sociologists; to many a new and therefore *suspect* term!

Now I, like Mr. Robertson, have posed a question which I have not answered. Indeed, I doubt if it can be answered at the present time in any adequate way. Is it necessary for the architect in order successfully to tackle this problem of housing to have a full acquaintance with all the work of the various groups of specialised activity in the province of housing? Even if he were so foolish as to attempt so impossible a task he would require not one life, but several, for even a partial apprehension, and in so attempting would so diminish his resources and dissipate his energies as to leave him

nothing in hand to carry out his normal functions as an architect.

As it is right that the architect should attempt to educate the public—*i.e.*, inform them of the extent, variety and direction of his specialised activities—so should the other groups make available such information to the public, including all specialised groups, the architect amongst others, whose interests are contiguous and sympathetic.

In the end the public, using the term as a connotation of all the individuals and groups exercising an influence within a given field, do determine what they want in housing as in other matters.

Social and Physical Obsolescence.

Let us make a brief historical survey of the changes wrought in house design over the last 100 years or so, occasioned by changes in the community's changing way of life. Here, for the sake of clarity, I am going to confine myself to what we know as "mass-produced" housing. In order to get a clear idea of what these changes mean, we must draw a very clear distinction between social and physical obsolescence. If a well-built house is properly maintained, its effective life, considered in terms of structure, may be anything up to 300 years or longer, but its life, considered in terms of social obsolescence, may be as short as 30 years. We are all familiar with the large Victorian family house of the 1860's, with its many high rooms, its basement and attics. By 1890 the basement had gone, the rooms were fewer and smaller, and the attics, though existing in a few examples, were, generally speaking, discarded; the long back addition did continue, though the tendency was to shorten it. In 1920 the back addition, largely through the influence of Sir Raymond Unwin during the time he was adviser to the Ministry of Health, vanished into the limbo of forgotten things—an immense gain in light and consequent health. The large Victorian house had by this time, by subtraction and compression, crystallised into the three-bedroom, two-sitting-room type, complete with kitchenette and the usual offices familiar to us all and known to many as the "Universal Plan."

A Radical Change Coming?

Now, if I am right in my approximation of time cycles, we are due for another radical change in 1950. Already we can discern in the designs for our post-war houses which have been published, certain tendencies. The long and wasteful passage to the rear sitting room is being discarded in favour of direct access to the kitchen or kitchenette, and thence by intercommunicating door from the dining-room, or dining recess, to the living-room. Windows tend to be larger and roofs flatter; and altogether these post-war houses have a lighter and more spacious air.

In conclusion, I would like you to consider this postulate: that in a democracy such as ours the quality of a nation's architecture will be in direct relation to the quality of its housing.

To the average Englishman his home is the structure that enshrines all that is dearest to him. If this structure is mean and tawdry, then how can we expect that the more important of our communal buildings shall have that degree of excellence which will denote a high degree of civilisation proper to a great nation?

The chair was taken by Mr. Cyril Martin (President) and a long and animated discussion followed the paper.

SCIENCE IN ARCHITECTURE

LECTURE TO R.I.B.A. BY PROFESSOR BERNAL.

A LECTURE on "Science in Architecture" was given before the R.I.B.A., on February 12, by PROFESSOR J. D. BERNAL, F.R.S. The President, Sir Percy Thomas, was in the chair.

The bringing to bear, said Professor Bernal, of combined special intelligences on a problem is the essentially new contribution; the collaboration and co-operation of people with different technical and different scientific contributions to make. It happened by force of circumstances in the war, but it is likely now to become established as a kind of tradition. It is the pattern which will enable us to tackle a large number of other problems.

In architecture to-day we are going through one of those major transition phases which have occurred before. We are going through a transition phase which is characterised by a change in two things at once—it is not accidental that they should go together—a change in requirements and a change in materials and methods. A very similar type of transformation, though not nearly so big, was that which occurred at the close of the Middle Ages, when the traditional stone architectural construction, almost exclusively used for churches and castles, gave place to a construction very largely in brick for the mansions of the new wealthy class. That transition made an enormous break in architectural practice. Now we are faced with a transition which has both those elements in it. The transition is to building for human requirements and human utilities, conceived of in a conscientious way, and doing so under conditions which both provide and require new materials and new methods of construction. There is a difference between this and the transition of the past, in that this is a very much more conscious transition.

The Advantage of Tradition.

There is an enormous advantage in tradition. The advantage of tradition, particularly for the architect, is that once tradition is established, once it is known in a general way how materials will behave and how structures will fit together, the architect can become very much more of an artist and less of a technician. Once the instruments are there, once the rules and orders of architecture are firmly laid down, he can become almost a pure artist, and simply combine them to produce more and more novel or pleasant, or merely tasteful results. With tradition you do get a definite growth of change, but the growth of change is done by the old process which occurs in the organic world, the process of the survival of the fittest. If someone tries something which is a little too new, and it does not work, he is eliminated, and people do not go that way. The trials are done full scale, and the thinking, so to speak, is done on the job. That kind of traditional change does work, with definite limitations; and we have now passed those limitations. The limitations are that the rate of change has to be sufficiently slow and that the materials and man-power are available in sufficient quantities for the jobs in hand. Neither of those conditions holds now.

If we consider that the whole direction of architecture is to be turned for a good many years to come on the provision of dwelling-space, we shall see the kind of problems which arise which cannot be solved in a purely traditional way. Our difficulty is that we want houses very badly, we want them very quickly, and we are likely to be short of manpower to an extent of which we have had no experience in past years. We have always lived in an era of potential, and usually actual, unemployment on a large scale, and the question of manpower has very seldom arisen. Similarly, the question of availability of materials, which boils down to a question of manpower in the material-producing industries, is also likely to be acute. We have therefore the pressure from the needs side to build the houses and the resistance from the means side as to materials and men; and it is just at that point that the full collaboration between the architect and the scientist is most needed.

We have to see the problem as one integral problem in all its aspects, and to break it down in such a way that it becomes a series of manageable problems that never lose touch with each other. Those problems have long-term and short-term aspects. While we are dealing with the immediate shortage we have, as we had in the war, to put on one side a number of things which seem to us very much better solutions. Take what is clearly by far the most important one—the actual materials, the basic constructional materials for houses. It is fairly clear now that the traditional materials for houses, brick and timber, are not the best materials for the job, but in fact we shall use them; we shall use them because it will take longer to get the new materials into action than we can afford to wait for the houses. But even if we do largely put that solution to one side, we do not forget it; we are learning all the time, in producing the marginal houses, to lead up to the big revolution in house construction. We would not come to that point of view on purely technical considerations.

In order to see what the problems are, it is necessary to begin, not with the house and not with the building materials, but with the people who live in the houses. It is an extraordinary thing that although we know in science a great deal about the most obscure and remote subjects, about the interior of the stars and the centre of the nuclei of atoms, we do not know scientifically some of the most simple things that, as you might say, everybody knows.

Take one extremely striking example, but a true one: We do not really know what women do in houses. Women all know what they do in houses, or they think that they know, but when it comes to getting the facts, it is extraordinarily difficult to get them. That energetic body PEP, in producing a very elaborate and useful summary of domestic gadgets, gave in the introductory material a table which purported to give the amount of time which the average housewife spent on various avocations—cooking, cleaning, washing-up, and so forth—and divided the week accordingly; but they admitted that this table was based on an inquiry into the work of fifteen housewives, and, in fact, we simply do not know enough to start with about what the house is used for. To get the real answers as to what you are designing a house for, you have really to design a house, and, in fact, a large number of houses, and put people in them and see how they get on. You have to undertake an experimental as well as a sociological survey in order to find out the very things that you want to begin with, the requirements that a house has to fulfil.

Many of you may say to me "That is not very important. We do not need any scientific research to know what a house

is for. Everybody knows what a house is for; a house is to live in, to keep out the rain, to be warm enough for people not to be positively uncomfortable in it, and to provide the background for living activities, some of them of a semi-industrial kind, like cooking, and some just sitting around and playing." It will be said that everybody knows that, and that, in a sense, has been the way in which the problem has been presented on the traditional or architectural level.

Science in House Design

Actually, however, if you consider those very simple requirements that I have mentioned you see that they themselves involve a great deal of scientific examination. If we could determine within limits the amount of air, and the amount of heat, and so forth, that are needed to provide a satisfactory optimum, healthy atmosphere we could start in an engineering way to provide them; but we do not even know those things. When I say we do not know, it does not mean that we are not trying to find out; we are trying to find out. But we do not even know what fresh air is. Everybody recognises fresh air when they have it, but we do not know what it is, we do not know how to measure it or necessarily how to provide it. We know some ways of providing it, such as going out into the open, and we know the traditional method of opening all the windows wide, but if we do that we produce draughts and so on. We should like to have a house where we could have all the advantages of fresh air without any of the disadvantages. That is not an impossibility, but in order to achieve it we shall have to do a good deal of research and a good deal of more or less full-scale experimentation.

In the same way, we do not know some of the most important things about heating. We do not know whether it is better to be gently warmed by an atmosphere at a medium temperature or to have an atmosphere at a much lower temperature and have a constant stream of radiation on us. One solution, from the other side of the Atlantic, is to say that the desirable kind of atmosphere is the atmosphere which people will pay to live in. We know that people will pay to go to Florida, to the South of France, and to Egypt in the winter. In all those places there is comparatively cool air and bright sun, and great numbers of people seem to prefer those conditions; at any rate they do not pay nearly so much to go to the West of Ireland or the North of Scotland unless they are feeling very energetic and nature-loving. You can produce those conditions in a house. It has been done by providing a radiating surface with fairly short infra-red rays uniformly, so that you do not find, as you do with an ordinary coal fire, that there is only one point where you can be reasonably warm, and you freeze if you go a little farther away or boil if you go a little nearer. With parallel heat you are just as hot in one place as in another, and that is the great advantage of sunshine.

I give that only as an example of the problems which we have to solve even in elementary physiological matters. We have to do much more than that; we have to solve the human problems of living in houses. There is the question of how many rooms are occupied, and of whether, when we demand a large number of houses, we do not really let our social habits make terrific demands on our architecture. If you were to take a census at the present moment of how many rooms were actually being occupied of the existing rooms which are furnished, you would probably find that it was between one-half and two-thirds, at one time one set of rooms and at another time another. That is only a guess. There is a tradition that that is necessary, because it has always been done; but if we could have suitable heating and ventilation we could find how to make the maximal use of the space we have. We might spread the family out a little more among the rooms of the house and provide more privacy if we had suitable heating. That is one of the questions which we must investigate.

Scientist and Architect in Collaboration.

We have two enormous problems which are not only the basis of architecture as far as houses are concerned, but equally the basis of architecture as far as any other kind of building is concerned; in fact, they may have been studied in more detail—it is true without any very satisfactory solutions—in the case of factories, of which fewer are built and more attention can be given to any one of them. We need a combined architectural and scientific team, basically sociological, to investigate the requirements.

When we get to know the requirements, we begin to see that they involve problems of a technical kind which are not necessarily problems which are solved by traditional methods. It is fairly clear that in order to be able to control the atmosphere and the heating of a house, however we may desire to control it, we have to keep a thorough control over it and prevent heat and noise getting into areas where we do not want them. In other words, we want insulation, and we want insulation as insulation. In the past, we have combined structure—the "firmness" of your architectural trinity—with insulation. We find, however, that far the best material of any for insulation is air, and what we really need to do in insulation is to get air cheaply. A brick had a good deal of air in it, but not nearly enough. Cork is perhaps the best that nature has done in the way of providing air suitably done up in small packets, but the modern foamed glass is probably on the way to the best solution.

We can see that if we want insulation, if we want walls, ceilings and floors which keep out heat, we have to provide either a fibrous structure or a cellular structure. If we provide a fibrous structure it is easier to do, but while we exclude air we probably do a good deal to make the entry of moisture easy, and particularly, of course, capillary moisture; and, therefore, having provided insulation against heat, we have to double it with insulation against moisture. Problems of a very serious kind have come up in this connection in prefabricated houses. On the other hand, if we use the cellular type we are perfectly protected against moisture, but perhaps too protected against any kind of gas or vapour movement; in other words, we are sealed into our house and have to make other arrangements for ventilation and use other methods for getting rid of vapour. I do not think that that second difficulty is as important as the first, but I do want to emphasise that we now have possibilities of relying on insulation and cutting down the actual weight of material in a house by a factor of at least 10 at present, but I should not be at all surprised if in a measurable time we reach a factor of 50 or 100. A house which at present weighs about 80 tons can be brought down to a weight which is no more than is needed to support the wind pressures and the live loads.

When we try to solve this problem, however, we come across other difficulties. There is the very elementary difficulty, which has held these things up in the past, of cost. We could probably even now build an extremely light house which would be very efficient, but it would also be very expensive. We are therefore driven to another straightforward technical problem: how are we to get these materials, basing ourselves on low cost? There are two factors in cost: the abundance of the raw material and the simplicity of the processes of working it up. All kinds of materials which have hitherto been considered as waste materials may very well be used for these purposes. There are vegetable materials such as straw and even bracken, and old vegetable materials like peat, which have enormous uses in building once the processes of working them up into a suitable form have been properly established. There you pass immediately from the research establishment to the manufacturing problem of production. In addition to materials of the vegetable type there are the great varieties of silicate materials, from the glass type to the new foamed concrete type. They provide us with completely new materials with which to work. The revolution of the early 20th century from brick to reinforced concrete was, of course, a revolution of engineers, a revolution dealing with heavy building, with bridges and civil engineering construction generally. It is the light insulated materials which are going to bring about the revolution on the more domestic side of architecture.

The Architect's Field.

If you have your new materials and if you know what it is that you want to make, you have still the job of making it. Here, more than anywhere else, is the proper field of the architect. The architect may say, "The scientist may tell us some things about what a house should do that we might not have been able to discover by intuition, and may even provide us with new materials, but the actual building of a house consists of the laying of stone on stone and brick on brick; that is the way in which houses have been built and always will be."

We know already that a good deal has been done to get away from that, but what has been done has often been as unintelligent as the tradition, with less excuse. The iconoclast who comes across people taking small prefabricated units such as bricks and putting them one on top of the other with great artistry but considerable slowness is apt to ask: "Why not do the whole thing in one." Edison, with a very simple mind, said, "Why not build a mould for the whole house, take some concrete, pour it down the chimney, and there you have your house?" He did it, but it was not a success, because he did not know and no one knew at that time that a house built of solid mass concrete poured in would not be very nice to live in even if it were cheap to make, and it was not cheap to make because of the mould. Nevertheless, the method is not a bad one and is used today with light aggregate or no fines concrete. However, that method of going all out to do the exact opposite of the traditional method is just as unscientific as the traditional method itself.

The real problem is to analyse bit by bit what are the operations that occur in any building and to see how those operations can most advantageously be carried out so as to give the minimum cost, the maximum speed—because we are in a great hurry at the moment—and the mini-

mum labour hours on the job itself. It is that acid test which determines whether any method of prefabrication is worth while or not. You lose as well as gain a great deal by prefabrication. You lose in the factory through the overhead cost of factory work. You have all kinds of difficulties, of the kind faced in the aircraft and other industries, of getting the parts to fit. Moreover, you work initially against one enormous disadvantage. The great advantage of tradition is that everybody knows how to do what they have to do; the great disadvantage of new methods is that you have new people doing new things, and you are bound to be inefficient.

Here again, however, this job can be tackled, and is being tackled. In the Building Research Station and in various groups of houses which are being built under the direction of the Ministry of Works, we are trying to treat the problem absolutely rationally and without prejudice. There is a very natural difference between the person who wants to build in a certain way and the scientist or the Government Department responsible to the community. The first is really trying to sell something. That is a perfectly legitimate thing to do, and he will succeed in doing it only in the long run by giving satisfaction; but his interest is necessarily biased in favour of what he is trying to sell, whereas we have to adopt a critical attitude. We have to see what each operation costs, and we have to find the sequence of operations which gives the best results. That may mean something between the fully prefabricated house and the traditional house.

After all, there is a great deal of prefabrication in the traditional house—doors, windows, and many other things. Take a floor. Is it easier to build a floor plank by plank on its joists in the house, or to build it somewhere else and take it to the house? In the latter case, what size of floor unit is the most economical to make? That means the balancing of a very large number of factors. It means balancing the prime cost between the factory method and the *in situ* method. If all that is done in the factory is exactly the same as what is done in the house, then the cost will be heavily weighted against the factory; but even if the factory, by using jigs and machine tools, and so on, is able to do it very much cheaper, you then have the much greater transportation cost of transferring the larger units from the factory to the site, and that may outweigh the advantage. It is a very difficult and intricate subject, but a subject which can be tackled, and which can only be tackled by a through-and-through scientific analysis.

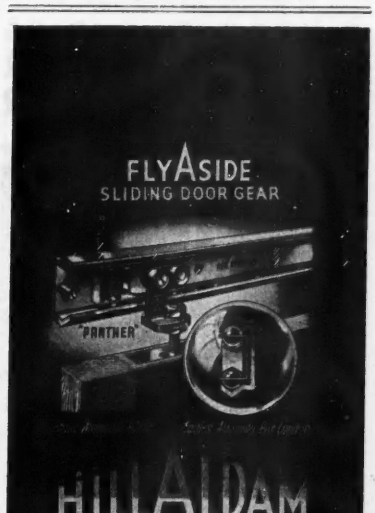
I have given all those examples to illustrate the much more extended kind of way in which science is coming into architecture in these days. You may say, and have great justification for saying, that it is not science, and others may say that it is not architecture; but, whatever it is, it is the way to get results in a complex civilisation such as we are moving into to-day. We shall have to take all these different things into account, and we shall have to get a kind of combination of scientist and architect to carry this out. It is not that the scientist is trying to take away the function of the architect, or to substitute something else for any part of that function. What the scientist is really doing is adding to the traditional materials and methods of the architect not just new materials and methods, but a way of finding new materials and methods. It is introducing foresight into what was previously something just going on of itself. When the rate of change in society gets beyond a certain amount, you cannot leave it to the individual genius of the architect, though he may himself be a scientist; you have to bring in the scientist, because he is the person who weighs up and assesses the results of any change.

The Work of the D.S.I.R.

How this is coming about is now fairly well established. There is already a very close liaison between scientists and architects in the Ministry of Works and through the Department of Scientific and Industrial Research. Every single example that I have given to-night is drawn from the experience of one or other of the actual workers in the Ministry or in the Building Research Station. The startling thing about it is that there is no individuality, nothing that is the exclusive work of one person or another. That integration, however, can be successful only if it stretches far beyond the Ministry and the Research Station into the actual work which is being carried on up and down the country. To achieve that, we have to get the willing collaboration and understanding of architects, builders, building trade workers and scientists. It is for that reason that I particularly welcome the formation and work of the Architectural Science Board. When it started—and I had the privilege of being asked to join it when it was the Architectural Science Group—it had only the idea of a programme, and we could not do any research but only think of the kind of research which we should like to have done. Now we are starting to do the research, and from now onwards we must begin to use it.

VOTE OF THANKS AND DISCUSSION

PROFESSOR J. M. MACKINTOSH, M.A., M.D. (Dean of the London School of Hygiene and Tropical Medicine), who moved a vote of thanks to Professor Bernal, said that the part of the address which had impressed itself most on his mind was that in which Professor Bernal emphasised the need for foresight and conscious planning "We are beginning as medical people—and I am sorry to say only beginning—to learn and to study and to analyse how people live in houses and what is meant by comfort conditions in houses. These things are of the greatest importance."



MR. M. HARTLAND THOMAS, F.R.I.B.A., said that when Professor Bernal was remarking how important team work was in their joint labours, it occurred to him (the speaker) that he had touched on something that was of the essence of architectural practice as we understood it nowadays. "There are some of us who are somewhat afraid of this science in architecture, and it has occurred to me that perhaps we might allay our fears by turning them inside out. I am inclined to wonder whether some scientists are not rather suspicious of Professor Bernal flirting with us architects, and do not wonder what architecture is going to do to science. I think that that is a motto for the times, because one of the things that I hold to be very important is the effect that architecture can have in bringing about a rapprochement between the arts and sciences. Architecture is half way between the two."

MR. D. G. LEWIS (Institution of Heating and Ventilating Engineers) said that Professor Bernal referred to research into comfort and warmth. One thing which required a great deal of thought was the psychological value of looking out of windows. It had a great psychological effect on the comfort of workers, and particularly of women workers, to be able to look out of the window. With regard to warmth and comfort, the question of monotony must not be overlooked. One could create conditions inside a room which were good from every physical aspect, but if they were monotonous they did not give a very satisfactory result. One must have some variation in the conditions. The provision of a background of radiant warmth, to which Professor Bernal had referred, was a great step in the right direction.

SIR FRANK E. SMITH said he could not help feeling, speaking as an industrialist, that the scientist was himself coming to realise how many sides and how many difficulties there were. Pure science by itself, as Professor Bernal has said, had a great contribution to make, and equally the economist, the production engineer, the planning engineer and the scientific engineer had contributions to make in evolving, developing and producing the new materials and the new methods for which we were all searching. "The overriding point that I would mention, however, is the very great benefit which is obtained by bringing in amateurs to any kind of scientific or industrial work. We have seen that in the war. Perhaps Professor Bernal would not agree that a scientist came into the war as an amateur, because he came in to start with on his own feet; but by 'amateur' I do not mean a completely untrained and unlettered individual, but someone who, with great knowledge in his own field, comes into a field which he has not hitherto studied. If you can bring in the amateur in that way alongside the technician and the scientist, and bring them together and make them work as a team, you get the benefit of experience and also the benefit of the critical outlook of the man who was brought in and who is asking 'Why' the whole time."

MR. MICHAEL WATERHOUSE, F.R.I.B.A., said he wanted to take up a challenge and to make a plea. The challenge was Professor Bernal's remark that brick and timber were not the best materials for building houses. His own feeling was that of all the materials at hand and in production to-day they were the most adaptable, and it was their adaptability that made them the most suitable. "To my

mind, adaptability is the real key to goodness in a material, and it is necessary because, as Professor Bernal has told us, there is no such thing as the standard man, the standard woman or the standard family, and, in view of the individuality of human beings, it is difficult to conceive of a satisfactory standard house."

MR. B. HAWARD (Association of Building Technicians) said that the point which had just been raised about adaptability was important. It seemed to him that adaptability had to go both ways; it was not only that materials had to be adapted to people, but also that people had to be adapted to the materials and to the technique which were most practical and economical at the present time. That led to the question of the education of the people who were going to use these materials. That was a major problem.

A vote of thanks was put by the President and carried unanimously with acclamation.

PROFESSOR J. D. BERNAL, in reply, said: I cannot help replying to at least one of the things which has been said, because I have been challenged to do so. I think that your Hon. Secretary (Mr. Waterhouse) has raised the most vital point, but it is one of those things about which we can be reasonable. In speaking of adaptability, I should like to distinguish in the first place between brick and timber. Timber is an eminently adaptable material. Some of you may remember an advertisement or cartoon in "The New Yorker," in which timber was shown as being sold with the commendation that it could be "cut, planed and treated in every way as a plastic." In fact, if we were making a new material and could make one as good as timber I think that the chemical engineers would be quite pleased. Timber is a material which I should like to see very much more used in building than it is. The reason that we do not use so much timber is not that we think that it is bad material but because we cannot get it.

Brick scores in quite a different way; it scores because a brick is small for a man's size and you can put an indefinite number of bricks together. It would be ideal, and would give a job to all the architects in the country, and would, indeed, call for about ten times as many as there are, if everybody could have a house designed specially for him, a kind of architectural Savile Row for everybody. In that case I think that the adaptability of bricks would be fully realised. If you want to study the adaptability of brick there are certain regions in South Kensington which nearly approximate to that condition. On the other hand, facing the actual facts, although the adaptability of brick enables you to build rooms of all sorts of different sizes and shapes, we do not in fact make use of that adaptability, and in the immediate future we cannot make use of that adaptability. We shall not be able to make variations in a matter of 4½ inches; our individuality must be limited to between 3 ft. 6 in. and 4 ft. We shall have a modulus which will be so many bricks, and as far as the details of it are concerned it would be very much better if it were all one brick. There are two or three methods of construction—to my mind, fantastically nonsensical—which propose to build a whole wall of brick in a factory and put it down on the site. If anyone could provide us with a reliable brick under modern conditions, say 3 ft. by 4, an insulated hollow brick, cheaply and accurately, it would make a very good building material, but I should not hold with it even then, because we waste a great deal of coal in making a high temperature material.

By and large, I would say that if possible we want to use no coal, or very little, in making any building materials, the reason being that building materials are required in such vast quantities that they use up an enormous amount of coal. I feel, therefore, that we must keep the ideal of adaptability in mind but try to find some other means of reaching it than bricks. No one need worry about this, because, in fact, we are not anywhere near getting a quantity substitute for brick, and we shall see brick houses going up for a long time to come.

Some interesting psychological points were raised about houses. Take the question of looking out of the window. I think that is where the architect comes in, not by providing a window to look out of but by providing a house opposite that is worth looking at. I have been more depressed by looking out of some windows than by having a blank wall. We have to take these aspects well into account. We are fully aware of, but not nearly fully enough informed of, the work that has gone on in other countries, and particularly in Sweden. There have been Ministry of Works and Building Research missions to Sweden which have come back with a great deal of valuable information, and we hope to make the fullest use of that and adapt it to British conditions.

A very serious question was raised by Mr. Haward, and I should like to issue a kind of demurrer. I do not think he meant what in fact he said; what he said would give a handle to the worst enemies of science, because he said that we had to adapt people to materials. As a scientist I should not agree to that at all. We cannot really adapt people very much, unless we do it through genetic selection and so on. It would be very convenient for the furniture trade and for a number of others if we were to breed people who were all exactly the same size. It would make things much simpler for the wholesale clothing trade. Man is a slow-breeding animal, and it would take us about 200 years to do it, but it could be done. The point is that we do not want to do it, because we do not think that the advantages would make it worth while. It is the same with houses; we do not want to make people adapted to houses, but we want to separate conveniences and needs and wants; we want to be quite sure that when a person objects to a new kind of house he is not objecting out of pure prejudice. The answer to that is to get him to live in the house and see whether he still objects. Not many years ago when dried eggs were first brought in there was very considerable feeling against them. I do not know whether we have become adapted to dried eggs, or whether we have realised that there is something to be said for them, at least when there are no shell eggs to be had. It is the same, I think, with many houses of the kinds which we have in mind.

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BUILDING PRIORITIES

ESTABLISHMENT OF ADVISORY COMMITTEES.

THE Ministry of Works stated on Tuesday that a new system for allocating priorities to building and civil engineering is now at work, and a national building and civil engineering programme, to cover five years, is being prepared. It is clear, however, that special steps are necessary to deal with the building programme and priorities for certain areas of special need —for example, those which have suffered exceptional war damage. Committees are being set up on an experimental basis for some of these areas, with the object of bringing together the Government Departments and the local authorities. The committees will draw up a building and civil engineering programme for the area, covering both a short term period and a longer period up to five years, and will advise on the relative urgency of different parts of the programme and the building labour supply position.

The committees will be advisory, and the actual granting of priorities will be dealt with by the present organisation of headquarters and regional committees. It is felt, however, that local committees of the kind suggested will be able to play an important part in seeing that the work needed is put in hand in order of urgency, and that everything possible is done to ensure that rehabilitation is carried out as quickly as possible.

Arrangements will soon be made to associate representatives of both sides of the industry with this work.

P. O. BUILDING PLANS

A NATION-WIDE SURVEY.

THE Post Office, with over six years' arrears to overtake in its building programme, and a legacy of some serious losses during the war, has been taking stock of its building requirements. Some of the important cases requiring attention are:

1. A new parcel office at Mount Pleasant, to replace the old parcel office building destroyed by enemy action in 1943, and other large London offices.

2. Construction of new buildings to meet the needs of peace-time traffic in cases such as Birmingham and Manchester, as well as many smaller towns.

3. A new Liverpool Head Post Office, to replace the old office severely damaged by enemy action and partially reconstructed; and new Head Offices to replace those destroyed at Plymouth and Exeter and certain other places.

In addition to the above, the following other major cases due to receive attention are:

(i) A new building for the Post Office Savings Bank Department.

(ii) New factories and stores depots both in England and Scotland. One of the largest, which is at Birmingham, suffered serious damage in air raids.

(iii) New administrative buildings for certain regional directors and telephone managers.

IN PARLIAMENT

Maximum Selling Price of Houses.

In reply to questions by Mr. Shawcross and others, MR. KEY, Parliamentary Secretary to the Ministry of Health, said that the Minister did not propose to increase the maximum selling price of houses erected by private developers because of the recent advance in wages. This advance was accompanied by a pledge from both sides of the industry that output would return to the 1938 level at the earliest possible moment, and it was well appreciated by the industry that building costs must be kept down.

Village Policy.

MR. J. MORRISON asked the Minister of Town and Country Planning if he would state the policy of his department in regard to villages deemed to be in a state of disintegration; and to how many villages this policy was to be applied.

MR. SILKIN said it was no part of the policy of His Majesty's Government to regard agricultural villages as in a state of disintegration. It was, however, recognised that there were villages throughout the country where improvements in living conditions were urgently needed and he assumed that it was with reference to such villages that the word "disintegration" was used. The improvements which were needed involved not only the provision of better housing and the development of services such as water, sanitation, electricity and transport, but also a considerable extension of educational and other social and cultural facilities, and, in many cases, the introduction of new industry.

In practice, these latter improvements could be provided only in selected villages. And although new opportunities for employment and education and a wider social life could, to some extent, be made available to all villages through improvements in transport facilities (and that was a policy which, where it was applicable, he approved and would encourage), there was obvious advantage in placing a large proportion of new housing in those village centres where industrial and community buildings were located. During the present period of shortage it would seem wise to devote a considerable proportion of the available labour and materials to development in such chosen centres, but thereafter he did not consider that there should be any bar to the replacement of outworn houses and the improvement of services in the majority of smaller villages, to which the inhabitants were attached by long-standing ties and associations. Nor, of course, would he seek to discourage the building in such smaller villages of new houses required by persons, for example, agricultural workers, who had to live near their place of work.

There were, however, some villages—usually small in size and mainly in the mining areas—which might truly be said to be in a state of disintegration both socially and physically, and where services and buildings were now in a semi-derelict condition. Such cases arose, for example, as the result of the exhaustion of a local mine upon which the village had been dependent. The provision of proper living conditions and opportunities for the populations of some settlements of this kind might only be practicable by means of general demolition and clearance and the gradual reaccommodation of the population concerned in new centres where the necessary employment opportunities, housing and communal facilities could be provided.

The problems to which the question referred were obviously complex, and the course to be taken in any particular case required very close regard to the particular circumstances. His officers would at all times be willing to discuss with the Local Authorities concerned the particular measures to be taken in order to secure as fully as possible that persons in village communities—as, indeed, in other communities—were housed in those places where convenience, amenity and the maintenance of a healthy communal life and tradition could be most fully secured.

Provision of Car-Parking Places.

Replying to a debate in the House of Lords on the provision of car parks—either above or below ground—for motor cars, LORD WALKDEN stated that the Minister of War Transport had decided to adopt the interim report of the Committee on Road Safety, which dealt with parking places. One of their recommendations was that planning or highway authorities be urged to require the provision of parking places in the reconstruction of large buildings. The committee also suggested that where people put up a great business there should be provision for parking for the people who were going to use the business, and probably other people as well. They recommended that parking places be provided on the outskirts of larger towns to relieve congestion in the cities. For example, the London Passenger Transport Board, at Morden, in Surrey, had made a large park close to the station, where people could drive up, put their car in and step into the tube, thereby not adding to the congestion of London. The decision of the Minister to adopt the recommendations of this report would encourage those who took an interest in the subject. There was only one proviso. In the first place, emphasis should be placed more on the encouragement of local authorities to provide car parks than on the prohibition of standing traffic. Of course, this unfortunately involved new legislation. There was really no chance of getting this done this year, but the Minister was arranging for it to take place in next year's programme.

Federation of Master Builders.

AT the fifth annual general meeting of this Federation, held on February 4, the following officers were elected for London Region: President, Alderman R. W. Ricketts; Vice-President, Mr. F. G. Conner; Hon Treasurer, Mr. W. P. Ball.

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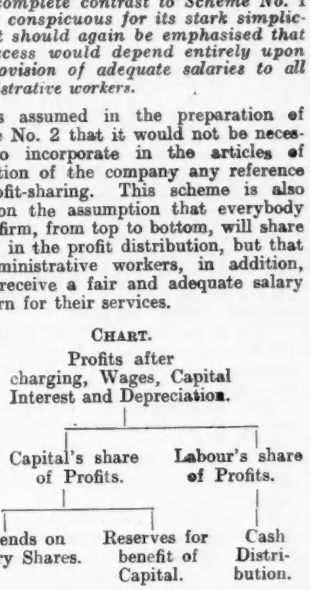
PROFIT SHARING IN THE BUILDING INDUSTRY—2.

BY E. B. RICE-PYLE

This is the second of three Schemes of Profit Sharing. The author states: It is in complete contrast to Scheme No. 1 and is conspicuous for its stark simplicity. It should again be emphasised that its success would depend entirely upon the provision of adequate salaries to all administrative workers.

IT is assumed in the preparation of Scheme No. 2 that it would not be necessary to incorporate in the articles of association of the company any reference to profit-sharing. This scheme is also based on the assumption that everybody in the firm, from top to bottom, will share equally in the profit distribution, but that all administrative workers, in addition, would receive a fair and adequate salary in return for their services.

CHART.


Profits after charging, Wages, Capital Interest and Depreciation.
Capital's share of Profits.
Labour's share of Profits.
Dividends on Ordinary Shares.
Reserves for benefit of Capital.
Cash Distribution.

1. *The Contract.*—The employer will enter into a deed of contract with each workman on fulfilment of a three-month probationary period as from the effective date of employment. The contract will set out in full the profit-sharing scheme with provisions to operate the scheme on an annual basis. At the completion of each year the employer together with two nominees of the workmen will meet to consider desirable adjustments to the scheme, and the scheme in its amended form renewed for a period of one year. At the end of each year a further revision will be undertaken by the same procedure if found necessary.

2. *The Basis of Ascertainment.*—The method for ascertainment for the division of profits will be set out in the contract with each workman, as referred to in Clause No. 1.

(a) Payment of fixed rates of wages to labour will be those fixed by the responsible wage-fixing body.

(b) Payment of a fixed rate, 7½ per cent. upon the capital employed in the firm, irrespective of the nature of investment. That is to say, ordinary shares, share holdings, or any loan attributable to capital, all shall be treated under one class as capital.

(c) Division of the balance of the profits to be:—

To Capital .....70 per cent.
To Labour .....30 per cent.

3. *Reserves.*—Reserves for the benefit of capital will be set up out of the share profits due to capital on the lines as illustrated in the chart set out above. Normal depreciation, renewals, maintenance, will be proper charges against profits, and the auditor's or accountant's certificate as provided for in Clause 4 will be binding as to this.

4. *Auditor's Certificate.*—The auditor or accountant will certify the amount of distributions in the terms of the following certificate:—

A.B.C. Co., Ltd.

Workers..... Distribution.....

Year ended ....., 1945.

We hereby certify that we have audited the accounts of the company for the year ended ....., and that the amount distributable to workers in the terms of profit-sharing amounts to £..... The amount distributable to each worker amounts to £.....

(Signed) X.Y.Z. and Co.
(Chartered Accountants).

NOTE.—This certificate could be devised on the lines of the ordinary dividend warrant, so that it would be possible to declare an interim at any time. This would then fall into line with the essential requirements of successful Profit-Sharing Schemes, see Clause 2.

5. *Employer's Share of Profits.*—As provided for in Clause 2 (b), the yield upon capital in the firm will be 7½ per cent., which is fixed according to the risks involved, such as bank rate, and any other contractual risks.

It is to be noted that the term capital for the purposes of this scheme is not confined to "ordinary shares" but to any investment on behalf of capital.

The fixed percentage of 7½ per cent. will apply to the whole of the aforesaid capital, but where loan capital has been raised below this rate of interest, then the lower rate only is to be charged to capital interest.

6. *Periodical Distributions.*—Accounts will be made up yearly, and distributions will be certified as soon after the end of each year as practicable, but the directors reserve the right to declare "interim" dividends at any time if so certified by the accountants in accordance with clause 4.

7. *Distribution of Workers' Profits.*—The total profits attributable to the workers will be distributed to each workman provided :

(a) No worker shall qualify for, or receive, a cash distribution unless he has completed a probationary period of three months' uninterrupted service with the firm ;

(b) On completion of three months' service, each worker shall qualify for participation in the profit-sharing scheme ;

(c) The worker's contract shall be endorsed by the firm, giving the date of entry into the scheme, and his name shall at the same time be entered on the register for distributions ;

(d) No worker under the age of 21 years shall participate in the scheme.

NOTE.—Very careful preparation would have to be made to deal with or guard against abuse of distributions, on the grounds of prolonged illness or absenteeism. It is suggested that any person absent more than 30 days in any year (365 days) will not benefit under this scheme.

8. *Administrative Workers.*—All administrative workers, office staff, outside staff, agents, general foremen, timekeepers, plant operatives, lorry drivers, etc., will participate in the scheme, but it is assumed that the firm will pay them adequate salary suitable to their respective spheres of employment.

9. *Register of Distributions.*—A register of all participants and distributions made will be kept at the offices of the firm. The announcement of the distribution will be posted on all jobs, works and head office of the firm in a prominent position, and will be expressed as the total amount distributable and the amount distributable to each workman.

10. *Memo. of items which would have to be considered with expert or legal advice.*—(1) Attitude of various Trade Unions to profit-sharing ; (2) Operation of P.A.Y.E. ; (3) Excess Profits Tax ; (4) Discussion with accountants versed in the working and accountancy of profit-sharing.

EXAMPLE OF SCHEME NO. 2 IN OPERATION.

The following example is given to illustrate the practical working of the scheme, and for convenience is dealt with on an annual basis.

Share Capital, £30,000.
Profits for year, £10,000.
Number of qualified workers, 300.
Percentage upon capital as fixed under Clause 2, 7½ per cent.

Allocation of Profits.		£
Fixed interest on capital, viz., 7½ per cent. on £30,000	...	2,250
Balance	£10,000	
	2,250	
	£7,750	
	Net profits	7,750

Divisible as under :—

To Workers :

30 per cent. as provided under clause 2 (c)	
30 per cent. of £7,750 = £2,325	2,325
Number of workers 300—divide into £2,325, equals a distribution to each worker of £7 15s.	

To Capital :

70 per cent. as provided under clause 2 (c).	
70 per cent. of £7,750 = £5,425	£5,425
	£7,750

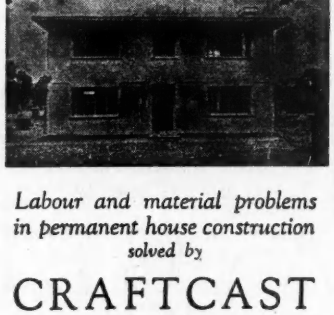
Divisible as under :

	£
To reserves, 10 per cent. of £5,425 =	542
Ordinary shares, £5,425 =	4,883
	£5,425

which equals a dividend of 16 per cent. on the ordinary shares.

AUTHOR'S NOTE : This information has been obtained, used, and condensed for the purpose of this scheme from the following publications : Askwith's "Profit-Sharing" ; H.M. Stationery Office Report No. Cmd. 544 ; "An Accountant and a Lawyer."

(To be concluded.)



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BRITISH REFRIGERATION ASSOCIATION

ANNUAL LUNCHEON.

THE annual luncheon of the British Refrigeration Association was held at the Connaught Rooms, W.C., on February 14, when the principal guest was the Rt. Hon. John Wilmot, M.P., Minister of Supply and Aircraft Production. Mr. E. G. Batt, Independent Chairman of the Association, presided. A large attendance included a number of distinguished guests.

In the course of his speech, MR. WILMOT said that with the development of the science of refrigeration there had arisen a large popular demand for refrigerators in the home as well as in commerce and industry. It was realised that refrigeration offered positive advantages to our civilisation. He thought that in the not distant future our standards of life would be such that if a home had no refrigerator we should feel it to be lacking in an essential feature. It would take us some time to achieve that high standard of a refrigerator in every home, but it was the sort of target of which he knew the Minister of Health approved.

He was glad to say something about the tremendous programme of refrigeration equipment, ice-making plant—he understood they were not quite the same thing—and air-conditioning plant which the members of the Association and others had been making for the Far East. In order that our troops could live and fight there, it was necessary to provide them with a mass of equipment so that their food could be guaranteed, in action, in hospital and in rest camps, and their living accommodation kept comfortable with air-conditioning. The total value of all the orders was considerably more than ten million pounds. That was not the end of the story : that huge load of work was called for from an industry already very heavily loaded with orders for armaments and other war-like stores. But the industry co-operated whole-heartedly, first in accepting contracts, and, secondly, in making their designs available to other contractors not normally engaged in the production of refrigeration equipment. The Ministry of Supply and Aircraft Production and the Forces in the Far East were deeply indebted to the industry for its help in that connection. It would not be out of place if he mentioned the names of three firms : Messrs. J. and E. Hall, Ltd., The Lightfoot Refrigeration Co., and Messrs. William Douglas, Ltd., for the help they gave.

His Ministry had the job of producing all the metal fitments that went to the making of houses, including refrigerators for prefabricated temporary houses, so that he was concerned there, too. With the ending of war contracts they had been able to approve a programme of production of refrigerating equipment for domestic, industrial and commercial purposes to the value of £2,000,000 for the period from January to June of this year. Of that equipment £1,300,000 worth was for the home market. It did not mean that everyone who wanted one would be able to purchase a refrigerator in the next six months. But it did mean that the industry and the Government had started on the road back, or, better still, the road forward to that higher standard of life which the Government had as its target. The prefabricated houses which had been built and were in course of construction as yet had no refrigerators. That was because of the tremendous programme of equipment which they had been engaged upon for the

Far East. But there was no departure from the original plan in that respect. A space had been left in those houses into which the refrigerator could be fitted as production made it possible. As to air conditioning, there was enormous scope for it in public buildings and in offices, and maybe in homes. The old House of Commons was a pet subject for argument on the matter. He thought they would set a new standard in the rebuilt House.

Referring to "quick freezing," the speaker said that we in this country had not taken up a new idea with the enthusiasm which he thought it deserved. That was partly due to the war. But now that the war was over we ought to give the subject more consideration. Quick freezing allowed one to freeze foodstuffs very rapidly, so that the water always present in food was frozen in tiny droplets. If food was frozen slowly the droplets tended to merge into one another until they became ordinary drops of water and freeze into little icicles which seriously damaged the food. A method of this kind would enable us to preserve in their original state all sort of foodstuffs and eat them at a convenient season when there was need for them.

MR. E. G. BATT said that during the past year the sectional membership of the Association had increased from 247 to 303 firms, which in some 60 sectional and committee meetings had continued to deal as necessary with the objects and work of the Association.

Having stressed the need to build up a great export trade, the speaker said it had been anticipated that until the end of the current year the manufacturer members of that Association would have been almost entirely occupied in connection with requirements for Government services, but a short time ago, due to a change in international circumstances, the original programme was materially reduced, and as a result it now seemed reasonable to hope that at a very early date supplies of domestic and other refrigerators in ever-increasing quantities would become available for general use, both at home and abroad. Whilst for a period these would of necessity be generally produced on the lines of pre-war models, yet, nevertheless, as early as practicable their customers would have made available to them equipment incorporating all the benefits of the experience which manufacturers had gained during the war period. To do this the present bottleneck in labour must be removed. Production needed labour and labour gave production. Unfortunately, in spite of many promises, a most unsatisfactory position still existed, and until this was remedied, industry would be quite unable to satisfy the demands now being made upon it. His members fully realised the responsibilities which they had to the Government and the public, and, so far as lay in their power, they would leave no stone unturned to fulfil these in every way.

MR. GEORGE TOMLINSON, M.P., Minister of Works, replied.

Mr. J. B. Blackwell, hitherto Assistant Secretary of this Association, has been appointed Secretary on the resignation of Mr. Felix A. Rogers.

"Careers in Iron and Steel."

In order to bring to the notice of parents, young men and educationists the opportunity of training for a career within the company's own organisation, Dorman, Long and Co., Ltd., have issued a pamphlet under the above heading, copies of which are available from G.P.O. Box 78, Zetland-road, Middlesbrough.

THE SCOTTISH BUILDER

NEW BUILDINGS

DUMBARTONSHIRE.—Plans in hand for alterations and extensions for the Albion Motors, Ltd., at South-st., Scotstoun, for which the architects are Wylie, Shanks & Wylie, West Regent-st., Glasgow.

GLASGOW.—Plans prepared for housing scheme at Broomhill, for which the architect is N. MacFadzean, 49, Borland-rd., Bearsden.

GLASGOW.—Alterations and additions to be carried out for Thomas Hinchelwood & Co., Ltd., at Glen Park-st., for which the architects are Miller & Black, 132, West Regent-st., Glasgow.

LARKHALL.—Plans prepared for premises at Morgan-st., for which the architects are William Wilson & Son, 103, Union-st., Larkhall.

FUTURE CONSTRUCTION

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

FEBRUARY 25.

†**Louth R.D.C.**—30 houses on 3 sites. Sheppard, Lockton and Saunders, 24, Castlegate, Newark-on-Trent, Notts. Dep. £3 3s. (payable to R.D.C.).

FEBRUARY 26.

†**Totnes R.D.C.**—8 houses at Dartington. Grant and Green, Architects, 10, High-st. Dep. £2 2s. Tenders by March 12.

FEBRUARY 27.

Dukinfield T.C.—70 houses at Victoria Farm site. E. Barlow, T.C. Dep. £3 3s. Tenders by March 18.

FEBRUARY 28.

†***Tiverton T.C.**—40 houses at Exeter-rd., Westexe South. H. S. W. Stone & Partners, Lloyds Bank-chbrs., 7, Fore-st., Taunton. Dep. £2 2s.

MARCH 1.

†***Durham E.C.**—Additional buildings at Kitchener-ter., adjoining Jarrow Grammar school. F. Willey (F.), F.S.I., 34, Old Elvet, Durham. Tenders by April 12.

†**Hexham U.D.C.**—Conversion of Isolation Hospital into temporary dwellings. C., Council Offices. Dep. £2 2s. Tenders by March 22.

†***Newton Abbot U.D.C.**—16 houses at Buckland estate. Written applications to S., 18, Devon-sq. Dep. £5 5s.

Wantage U.D.C.—10 houses. W. S. Stanbrook, Architect, Heathcote, Bradfield, Reading. Dep. £2 2s.

MARCH 2.

Berwick T.C.—Work in various trades for 20 houses at Summerfield-terr. R. G. Johnston, C.C.

†**Clackmannan T.C.**—Work in various trades for 124 houses on 2 sites. County A., Town Hall, Alloa.

†**Conway T.C.**—(a) 38 houses; (b) extensions of sewers and roads at Marl estate, Llanduduo Junction. L. Moseley, Architect, J. M. Porter and Co., The Estate Office, Colwyn Bay. Dep. £2 2s.

†***Epping R.D.C.**—20 houses at Church-la., North Weald. Tooley and Foster, Midland Bank-chrs., Buckhurst Hill, Essex. Dep. £2 2s.

Hendon T.C.—36 houses at Salcombe-gdns., Mill Hill. A. O. Knight, B.E. Dep. £2 2s.

†**Kington R.D.C.**—(a) Erection of houses; (b) site works. P. T. Davies, C. Dep. £2 2s.

Skelmersdale U.D.C.—12 houses at School-la. C. Dep. £2 2s.

MARCH 4.

Bury C.B.—164 dwellings at Fairfield estate. B.E. Dep. £2.

Camforth U.D.C.—(a) Roads and sewers; (b) 78 houses at Kellet-rd., Highfield. F. Holt, S. Dep. £2 2s.

Crickhowell R.D.C.—28 houses at Llanbedr-rd. J. Merton Jones (L.), Abergavenny. Dep. £3 3s.

†***Eastry R.D.C.**—38 houses at 3 sites. H. M. Barker (L.), 16, King-st., Deal, Kent. Dep. £2 2s.

Huntingdon E.C.—Kitchen and dining-room at Huntingdon school. T. H. Longstaff, County S. & A., Walden House, Huntingdon.

Manchester T.C.—Contract No. 10, 142 houses and cottage flats; Contract No. 11, 93 houses and cottage flats. Housing Dept., Town Hall. Dep. £3 3s.

Watford R.D.C.—18 houses at Trowley-rise, Abbots Langley. E. & S. Dep. £2 2s.

MARCH 5.

†***Hammersmith B.C.**—56 flats, laundry and community hall at Riverside-gdns., Mall-rd. B.E. & S. Dep. £2 2s.

Malden T.C.—14 houses at Towers estate, Colchester-rd. B.E. Dep. £2 2s.

Weardale R.D.C.—21 houses at three sites. J. J. Eltringham, Derwent-st., Blackhill. Dep. £3 3s.

MARCH 6.

Bedworth U.D.C.—26 houses at Furnace Fields estate. S. J. Oldham, Architect, 4, Queen Victoria-rd., Coventry. Dep. £1 1s.

Buxton T.C.—100 houses at Heath-gr. estate. T.C. Dep. £2 2s.

Haverhill U.D.C.—20 houses and eight bungalows at Helions Park site. D. C. Denton-Smith (L.), 40, Regent-st., Cambridge. Dep. £3 3s.

Stratford-on-Avon R.D.C.—30 houses at Warwick-rd., Henley-in-Arden. J. E. Bagnall & Son, York House, Gt. Charles-st., Birmingham 3. Dep. £1 1s.

MARCH 7.

Andover R.D.C.—16 pairs houses on 3 sites. F. Henshaw (F.), Westminster Bank-chrs., Andover. Dep. £2 2s.

†***Cheshunt U.D.C.**—48 houses at Bury Green estate. Clifford Tee and Gale, architects, Moorgate Hall, 153, Moorgate, London, E.C.2. Dep. £2 2s. Tenders by March 22.

Cleethorpes T.C.—72 houses off Clee-rd. Leonard W. Pye, A.M.Inst.C.E., B.E. Dep. £2 2s.

MARCH 8.

Northern Ireland Housing Trust.—293 houses at Lisburn. Trust Offices, 5, Donegall-sq. South, Belfast. Dep. £5.

MARCH 9.

Abergavenny T.C.—74 houses at Pitts Nurseries site. B.E. Dep. £2.

†***Cambridge T.C.**—17 pairs of houses and 16 blocks of four houses at Trumpington estate. Contract No. 3. B.S. Dep. £3 3s.

***Kettering T.C.**—Eight blocks of two houses each and five blocks of two houses each at Stamford-rd. estate. B.E. Dep. £2 2s.

Sutton Coldfield T.C.—23 houses at Tower-rd. estate. B.S. Dep. £2 2s.

MARCH 11.

Cannock U.D.C.—74 houses on two sites. S. Harrison, architect, Council House. Dep. £3 3s.

***Hayes & Harlington U.D.C.**—Conversion of Dawley Manor Farm into two flats. E. & S. Dep. £2 2s.

Minehead U.D.C.—57 houses at Quarry Close site. A. Douglas Barron, M.Inst.M. & Cy.E., S. Dep. £3 3s.

Norfolk Standing Joint Committee.—Police houses in 8 districts. County A., 25, Thorpe-rd., Norwich.

Southport C.B.—Alterations at Poulton-rd. welfare centre. B.E. Dep. £1 1s.

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MARCH 13.

***Coulsdon and Purley U.D.C.**—156 houses and five flats at Tollers-la. E. F. J. Felix, C. Dep. £5 5s.

***Hampshire C.C.**—Four police houses at Winchester Police Headquarters. S. Low, County A. Dep. £1 1s.

MARCH 14.

Kenilworth U.D.C.—36 houses at Bulkington estate. G. A. T. Edmundson, S. Dep. £2 2s.

***Twickenham T.C.**—72 houses in three sections at Longford River estate, Hanworth-rd., Hampton. A. S. Knolles, B.Sc., B.E. & S. Dep. £3 3s.

MARCH 15.

***Ringwood and Fordingbridge R.D.C.**—Eight pairs of houses at Parsonage Barn-la., Ringwood. Frank Andrews (L.), 45, High-st., Ringwood. Dep. £2 2s.

MARCH 16.

Downham R.D.C.—4 pairs of houses at Barroway Drove. H. C. Hughes and P. Bicknell (FF.), 1, Tunwells-ct., Trumpington-st., Cambridge. Dep. £2 2s.

MARCH 18.

Haverfordwest R.D.C.—64 houses on various sites. A. J. Davies, M.Inst.M. & Cy.E., S. Dep. £3 3s.

Matlock U.D.C.—68 houses at Cromford site. N. Chamberlain, F.S.I., E. and S. Dep. £3 3s.

***Orpington U.D.C.**—Rebuilding two houses at Churchfields, Keston and one at Bridge-rd., St. Mary Cray. E. & S. Dep. £3 3s.

MARCH 19.

Fareham U.D.C.—152 houses on 4 sites. E. and S., Westbury Manor, Fareham. Dep. £2 2s.

MARCH 20.

***Ruislip-Northwood U.D.C.**—145 houses at Ickenham estate, South Ruislip. H. R. Metcalfe, A.M.I.C.E., E. & S. Dep. £3 3s.

MARCH 26.

***Cheshunt U.D.C.**—48 houses at Bury Green estate. Clifford, Tee & Gale, architects, Moorgate House, 153, Moorgate, E.C.2. Dep. £2 2s. by cheque, payable to U.D.C.

***Stepney B.C.**—113 dwellings at Tarling-st., Contract No. 646. B. W. Stuttle (F.), M.Inst. M. & Cy.E., B.E. & S. Dep. £20.

APRIL 2.

Gloucester T.C.—38 houses at Podsmead and 40 flatted dwellings at Reservoir-rd. City A. Dep. £2 2s.

NO DATE.

Dorking U.D.C.—53 houses at Chant Downs estate. Acting O. Dep. £2 2s.

***Leighton Buzzard U.D.C.**—2 groups each of 3 pairs of houses and 2 groups each of 2 pairs at Garden Hedge site. H. A. Rolls (L.), F.S.I., 15, Bridge-st., Leighton Buzzard. Dep. £2 2s.

***Rickmansworth U.D.C.**—57 houses at Baldwins-la. site. Herbert Kenchington (F.), 130, Crawford-st., Baker-st., W.1. Dep. £2 2s.

MISCELLANEOUS

MARCH 1.

Maltby U.D.C.—Demolition of 272 shelters. S.

MARCH 4.

Blackburn C.B.—Demolition of 290 public and communal surface shelters. B.E. Dep. £2 2s.

Newmarket U.D.C.—Demolition of 50 shelters. S.

MARCH 7.

Billinge and Winstanley U.D.C.—Demolition and removal of shelters. S. Dep. £1 1s.

Kidsgrove U.D.C.—Demolition of shelters. E. and S.

MARCH 9.

***Newton Abbot U.D.C.**—Demolition and clearance of three brick and concrete water tanks, 12 surface shelters and nine communal shelters. E. & S. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

MARCH 1.

Colchester T.C.—B.E.

Weymouth and Melcombe Regis T.C.—B.E. and S.

MARCH 2.

Denbighshire C.C.—County S.

Failsworth U.D.C.—E. and S.

Ormskirk U.D.C.—S.

MARCH 4.

Ashton-under-Lyne T.C.—B.E. and S.

Batley T.C.—B.E.

Dewsbury C.B.—B.E.

East Ham B.C.—T.C.

Matlock U.D.C.—E. and S.

Shrewsbury T.C.—B.S.

MARCH 5.

Acton T.C.—B.E.

Llwchwr U.D.C.—Highway S.

MARCH 6.

Brighouse T.C.—B.E.

Mansfield Woodhouse U.D.C.—S.

Ogmore and Garw U.D.C.—E. and S.

MARCH 7.

Frimley and Camberley U.D.C.—E. and S.

MARCH 8.

Brierley Hill U.D.C.—E. and S.

MARCH 9.

Adwick-le-Street U.D.C.—E. and S.

Clayton-le-Moors U.D.C.—S.

Kent C.C.—County A.

Mexborough U.D.C.—S.

MARCH 11.

Middleton T.C.—B.E.

Wilmslow U.D.C.—S.

MARCH 12.

***Ealing T.C.**—External painting of 484 houses. C. W. Seddon, M.Inst.C.E., B.E. Dep. £1 10s.

MARCH 16.

Maesteg U.D.C.—S.

MARCH 21.

Coulsdon and Purley U.D.C.—S.

ROADS, SEWERAGE AND WATER WORKS

MARCH 1.

Hull T.C.—Roads and sewers at Sutton-rd. City E. Dep. £2.

MARCH 4.

Bucks C.C. — Road maintenance and strengthening works. County S.

Chesterfield R.D.C.—Roads and sewers at Eckington Central estate. E. and S. Dep. £2 2s.

East Elloe R.D.C.—Supply and laying of approx. 31,500 yds. of small dia. asbestos cement pipes, etc. G. E. Roberts, Water E., Holbeach. Dep. £2 2s.

Todmorden T.C.—Surface dressing. B.S.

MARCH 5.

Clifton T.C.—Roads and sewers at Townstal site. B.E. Dep. £2 2s.

Southgate T.C.—Roads and sewers at Wade's Hill, Winchmore Hill. B.E. and S. Dep. £2 2s.

MARCH 6.

Acton T.C.—Reinstatement of sewers and highways. B.E.

Bristol and District Group.—Roads and sewers at Southmead estate, Bristol. Contract No. 4. City E. Dep. £2 2s.

Mildenhall R.D.C.—Construction, completion and maintenance of approx. 19,650 lin. yds. of 3 in. dia. asbestos cement pipes with hydrants, etc. Silcock and Simpson, 10, Park-row, Leeds 1. Dep. £2.

MARCH 8.

Shifnal R.D.C.—Construction of approx. 1,150 lin. yds. of 9-in. stoneware and 15-in. concrete pipe foul and surface water sewers, etc. Willcox, Raikes and Marshall, 33, Gt. Charles-st., Birmingham, 3. Dep. £5 5s.

Wisbech T.C.—Construction of main sewer. Willcox, Raikes and Marshall, Birmingham, 3. Dep. £10 10s.

MARCH 9.

Rayleigh U.D.C.—Roads and sewers at Rawreth-la. and Weir-gdn. site. S. Dep. £2 2s.

Spilsby R.D.C.—Laying of approx. 9,500 yds. of 6-in. asbestos-cement water mains, etc.. Water E. Dep. £2 2s.

Upper Stour Valley Main Sewerage Board.—Construction of about 410 yds. of 15-in. concrete pipe sewer, etc. (Branch sewer No. 3). Geo. Plant Deeley, M.Inst.M. & C.E., 13, Church-st., Stourbridge. Dep. £3 3s.

MARCH 11.

Beaconsfield U.D.C.—Construction of 250 yds. 12 in. dia. foul and surface water sewers. E. and S. Dep. £2 2s.

Dunmow R.D.C.—Pipe laying, Contract No. 13. C. Dep. £3 3s.

Sleaford U.D.C.—Construction of sewage pumping station. C. Dep. £2.

MARCH 13.

***Oxford T.C.**—Roads and sewers at Rose Hill estate, No. 3 (B). City E. & S. Dep. £5.

Portsmouth T.C. — Additional sewers at Northern-rd., London-rd., and Southwick-rd. City E. Dep. £2 2s.

Portsmouth T.C.—Roads and sewers at Portsdown Hill, Cosham. City E. Dep. £2 2s.

MARCH 18.

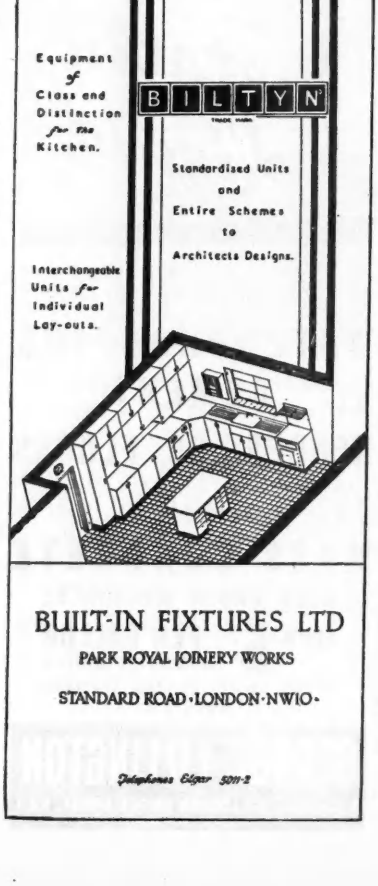
Burnley C.B.—Reconstruction of sewerage system, Fulledge district. B.S.

MARCH 27.

Dagenham T.C.—Construction of approx. 2 miles of stoneware sewer, etc. J. D. and D. M. Watson, MM.InstC.E., 3, Old Queen-st., Westminster, S.W.1. Dep. £5 5s.

NO DATE.

Cheltenham R.D.C.—Laying approx. 1 mile of sewer at Greet. John H. Haiste, M.Inst.C.E., 4, Queen-sq., Woodhouse-la., Leeds, 2.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PUBLIC APPOINTMENTS

*Full details of Public Appointments marked * are advertised elsewhere in this issue. Those marked † have been advertised in previous issues.*

MARCH 2.

***Loamington Spa T.C.**—Director of Housing.

MARCH 4.

†Blackpool C.B.—Two Architectural Assistants.

†Blackpool C.B.—Senior Architectural Assistant.

***London County Council.** — Structural Engineers.

***Nottingham T.C.**—First Assistant Quantity Surveyor.

†Orpington U.D.C.—Architectural Assistant.

†Worcs C.C.—Senior Draughtsman.

MARCH 5.

***Essex E.C.**—Studio Master and Lecturer in Architectural Design and Technique of Presentation at South-West Essex Technical College.

***Norfolk C.C.**—Architectural Assistant.

MARCH 6.

***Taunton T.C.**—Clerk of Works.

***Whiston R.D.C.**—(a) Senior Planning Assistant; (b) Building Inspector.

MARCH 7.

***Cambs C.C.**—Assistant Quantity Surveyor.

†Hastings C.B.—Stores Superintendent.

MARCH 8.

***Lincoln T.C.**—(a) Junior Architectural Assistant; (b) Clerk of Works.

***Surrey C.C.**—(a) Assistant Architect, Class I; (b) Assistant Quantity Surveyor, Class I; (c) Assistant Quantity Surveyor, Class II; (d) Maintenance Surveyor, Class III.

MARCH 9.

***Newton Abbot U.D.C.**—Clerk of Works.

***Reading C.B.**—Assistant Drainage and Buildings Inspector.

***Slough T.C.**—(a) Engineering Assistant; (b) Engineering Assistant; (c) Senior Architectural Assistant; (d) Architectural Assistant; (e) Building Inspector.

MARCH 11.

***Manchester T.C.** — (a) Senior Planning Assistant; (b) General Planning Assistant.

***Sunderland E.C.**—Assistant Master at Villiers-st. Technical school.

MARCH 12.

***Salford T.C.**—Architectural Assistant.

***Willesden T.C.**—Estimating Surveyor. B.E. & S.

MARCH 13.

***Middlesex C.C.**—Full-time teacher of Science at Tottenham Technical College.

MARCH 16.

***Cornwall C.C.**—(a) County Building Inspector; (b) Assistant Building Inspector.

†Kent E.C.—Head of Department of Building at Bromley.

†Ministry of Town and County Planning.—Assistant Regional Planning Officers.

***Westmorland C.C.**—(a) Senior Assistant Architect; (b) Assistant Architect; (c) Junior Architectural Assistant.

MARCH 18.

***Lancs C.C.**—(1) Assistant County Architect; (2) Assistant Architects; (3) Junior Assistant Quantity Surveyors; (4) Junior Assistant Land Surveyors.

***Lancs C.C.**—(1) Senior Engineer; (2) Heating and Ventilating Engineer; (3) Electrical Engineer.

MARCH 20.

†Inverness C.C.—County Road Surveyor.

†Plymouth T.C.—Deputy City Architect.

MARCH 23.

***Surrey C.C.**—Clerk of Works.

MARCH 25.

***Preston C.B.**—(a) Chief Assistant Architect; (b) Chief Housing Architectural Assistant; (c) Senior Assistant Architect; (d) Architectural Assistant; (e) Senior Quantity Surveying Assistant; (f) Two Engineering and Surveying Assistants; (g) Chief Town Planning Assistant; (h) Senior Town Planning Assistant; (i) Town Planning and Surveying Assistant.

***Preston C.B.**—Highways Superintendent and Building Inspector.

NO DATE.

***Northern Polytechnic, N.7.**—Senior Steward.

***Northampton B.C.**—Assistant Architect.

***Northampton E.O.**—Full-time Teacher of Building Subjects.

GENERAL BUILDING WORK

Altrincham.—Justices approved hotel at corner of Moss-la. and Orchard-dr., Hale, for S. W. Winstanley.

Bridlington.—T.C. approved concrete jetty in the harbour, at £18,000.

Birkenhead.—H. A. Cole & Co., Ltd., machine belting manufacturers, propose extensions to Beaufort-rd. works.—T.C. approved offices at works for New Vittoria Engineering Co., Ltd.

Brighouse.—West Riding C.C. propose prefabricated kitchen and dining-room at Secondary school for Girls.

Cannock.—U.D.C. propose maternity home at Cannock and welfare clinic at Heath Hayes.

Cheadle.—Cheshire E.C. propose conversion of Moseley Hall into County Grammar school.

Chorley.—T.C. propose extensions at swimming baths, at £10,000.

Clitheroe.—Lancashire P.A.C. propose maternity unit at Institution, at £6,000.

Coventry.—T.C. approved 190 houses type A51 and eight bungalows at Charter estate, off Fletchampstead Highway.

Drayton.—R.D.C. propose 148 houses at various sites.

Grangetown (Yorks).—Tadcaster Brewery Co., Ltd., granted provisional licence for hotel, at £22,000.

Greenwich.—B.C. proposes seven blocks of flats (112 in all) on the Cherry Orchard estate, at £136,816.—Also 48 Orlit permanent prefabricated houses, at £51,804 on same estate.

Heywood.—T.C. approved school kitchen at Hornby-st., Lancashire E.C.

Holyhead.—U.D.C. propose erection of public abattoirs.

Hull.—T.C. propose pavilions on 11 playing fields, at £13,156.

L.C.C.—L.C.C. propose to acquire for housing: (a) 3.36 acres, Bird-in-Bush-rd., Camberwell; 1.62 acres at Blackheath-hill, Greenwich and Lewisham; 9 acres, Chartfield-av., Wandsworth; land at Hurlock-st., Islington; and 0.37 acre at Kennington Park-rd., for 30 dwellings.

Leigh.—N. Farrell, 2, Hull-rd., Blackpool, proposes sports stadium, buildings and stands off Holden-rd. and Chester-st.

Macclesfield.—T.C. propose Maternity Home.

Matlock.—Derbyshire E.C. propose dining-room and kitchen at Ernest Bailey Grammar school.

Newcastle-under-Lyme.—Hind & Brown, 10, Bridge-st., Hanley, Stoke-on-Trent, are architects for rebuilding premises at Bridge-st., for Hubanks', Ltd.

Oldham.—T.C. approved alterations and provision of hostel at Westwood Park Institution, at £18,160.

Salford.—T.C. approved: Transport garage at Islington-st. for North Western Transport Services, Ltd.; offices at 20, Dacson-st., for Sieff & Beaumont, Ltd.

Scalby.—U.D.C. propose 112 houses on approved sites.

Scarborough.—R.D.C. approved concrete built chalets, dining-hall, kitchen, administrative block, garages, etc., at Cayton Bay, for Sunshine Estate Camp Co.

Sheffield.—E.C. propose primary school at Teynham-rd., Penrith-rd., and Longley-av., Shirecliffe estate.

Stockton-on-Tees.—T.C. propose to extend river quay, at £30,000. Plans by B.S.

Stockton-on-Tees.—Justices approved plans for hotel at Norton, at £25,000, for Beverley Bros., Ltd., Eagle Brewery, Wakefield.

Stockport.—T.C. approved: 78 houses at Lowdnes-la. and Nangreave-rd., for H. S. Doran & Son, architects, 19a, Offerton-la.

Stourbridge. — Wolverhampton & Dudley Breweries, Ltd., Park Brewery, Wolverhampton, propose hotel at junction of South-rd. and Edward-rd.

Stretford.—T.C. propose 220 houses and shops at Sandy-la. site.—T.C. approved rebuilding three storeys of warehouse at Trafford Park-rd., for Liverpool Warehousing Co., Ltd.

Sunderland.—T.C. approved plan by E.C. for provision of kitchen and dining accommodation at schools, at £100,000. Community centres proposed at Thorney Close and Hill View, at £35,000 each.

Tynemouth.—Jack Cotton, Ballard & Blow, of Birmingham, are architects for factory of 300,000 sq. ft., for Tyne Plywood Works, Ltd.

Wednesbury.—West Midland Joint Hospital Board propose nurses' home at Moxley, at £7,000.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Abram.—38 houses at Lee-la., for U.D.C. J. C. Prestwich & Sons, architects, Leigh; ‡Alex. Wigan & Son, Ltd., Manchester-rd., Ince, Wigan, £45,390.

Bradfield.—Seven pairs of houses at Bourne-rd., Pangbourne, for R.D.C. W. G. Stanbrook, architect, Heath-rd., Bradfield: *Y. J. Lovell & Son, Ltd., High-st., Manton-on-Thames, £17,494.

Buckingham.—Foundations, party walls, chimneys, drainage, etc., and erection of superstructure for provision of eight Swedish houses, for R.D.C. F. T. Jennings, S.: *Pollard & Son, School-la., Buckingham, £5,100 (subject to approval of Council and M.H.).

Camelford.—Eight houses at St. Breward, for R.D.C. B. C. Andrew, architect (Andrew & Randall): *Hooper Bros., St. Judy, Bodmin, £8,856 (accepted subject to consent).

Cheadle Hulme.—School kitchen, for Cheshire E.C. E. M. Parkes (F.), County A., The Castle, Chester: *E. E. Coleman, Ltd., Waverley-rd. Works, Sale, Ches.

Cranbrook.—34 houses on two sites, for R.D.C. W. Lynn-Thompson (A.), F.S.I., The Ingles, Hawkhurst; ‡W. P. Woodgate, High Halden, Kent, £42,905.

Crook and Willington.—Houses for U.D.C.: *Walton Bros., Crook.

Droitwich.—Houses, for R.D.C. Pritchard, Godwin & Clist (F.), Bank-bldgs., Kidderminster. Two at Tibberton: *George Bourne, Alexandra-av., Droitwich, £2,311; six at Crowle: *Wheeler & Mansell, Ltd., Lime-st., Evesham, £7,332.

Dunston-on-Tyne.—Factory for Fibreboard Boxes Co., Ltd.: *H. E. Pitt & Co., Leopold-st., Millfield, Sunderland.

Hebburn.—Offices for Palmers Hebburn Co., Ltd.: *Gustavus Bailey, Ltd., King-st., South Shields.

Lancashire.—Works for C.C. G. Noel Hill (F.), County A. Central kitchen at Ormskirk: *T. Riding & Sons, Ltd., Chapel-st., Ormskirk, £4,530; two additional classrooms at Leigh Girls' Grammar school: *Geo. Moss & Sons, Ltd., Back St. Helens-rd., Leigh, £808.

L.C.C.—For the extension of Wheeler House, Quaker-st. area, Stepney, by 19 dwellings:—

	£
H. C. Horswill, Ltd., Forest Gate ...	26,387
Truett & Steel, Ltd., Westminster ...	25,017
F. R. Hipperson & Son, Ltd., E.C.2 ...	24,875
Pitchers, Ltd., Holloway	24,718
Charles S. Foster & Sons, Loughton ...	23,637
Albert Monk, Edmonton	23,286
J. E. Billings & Co., Ltd., Croydon ...	23,200
L. & W. Whitehead, Ltd., Clapham ...	23,149
John Mowlem & Co., Ltd., Westminster	22,800
F. Troy & Co., Ltd., Westminster ...	22,181
A. T. Rowley (Lond.), Ltd., Tottenham	22,181
Henry Boot & Son, Ltd., Kensington ...	21,726
William F. Blay, Ltd., Westminster ...	21,367
*Ashford Builders Co., Ltd., Holborn ...	20,397

Director of Housing and Valuer's estimate, £21,913.

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L.C.C.—For the reinstatement of 46 war-damaged flats on Tabard-gdns. estate, Bermondsey and Southwark:—

	£
H. C. Horswill, Ltd., Forest Gate ...	46,000
Allen Fairhead & Sons, Ltd., Enfield ...	45,019
R. Mansell, Ltd., Croydon	44,623
A. O. Laird, Ltd., Westminster	44,216
A. T. Rowley (Lond.), Ltd., Tottenham	41,324
F. & H. F. Higgs, Ltd., Herne Hill ...	40,762
Trollope & Colls, Ltd., Holborn	40,357
W. H. Gaze & Sons, Ltd., Kingston-on-Thames	40,352
W. J. Simms, Sons & Cooke, Ltd., Westminster	39,887
Gee, Walker & Slater, Ltd., Westminster	39,600
Bovis Public Works, Ltd., Westminster	39,317
Henry Boot & Sons, Ltd., Kensington...	39,194
Charles R. Price, Stoke Newington ...	38,989
F. Troy & Co., Ltd., Westminster ...	38,947
*Walter Lawrence & Son, Ltd., E.C.2. ...	38,170

Director of Housing and Valuer's estimate, £37,991.

L.C.C.—For pile foundations of blocks 2, 3, 4 (part) and 5 of dwellings at Wapping estate, Stepney:—

	£
Concrete Piling, Ltd., Westminster ...	14,760
Bierrum & Partners, Ltd., Harrow ...	9,265
The Cementation Company, Ltd., Westminster	7,890
Franki Compressed Pile Co., Ltd., Westminster	7,770
Christiani & Nielsen, Ltd., Westminster	7,750
West's Piling & Construction Co., Ltd., Harmondsworth	7,608
Holst & Co., Ltd., Berkhampsted ...	7,600
Simplex Concrete Piles, Ltd., Kensington	6,916
*J. L. Kier & Co., Ltd., Westminster ...	6,446

Director of Housing and Valuer's estimate, £7,000.

Liverpool.—Canteen at St. Cuthbert's R.C. school, for T.C. L. H. Keay (F.), City A., Blackburn-chbrs., Dale-st.: *Unit Construction Co., Ltd., Bentham-dr., Childwall, Liverpool 15, £1,839.

¶London (Air Ministry).—List of contracts to value of £500 or over for week ended February 16:—

Building work: Brown, Fraser & Co., Ltd., Glasgow; F. Parkinson & Son, Blackpool; Alex Sutherland, Sutherland; G. & J. P. Gregory, Caernarvon; Henry Kelly (Cttrs.), Ltd., Newcastle-on-Tyne. *Electrical wiring work*: B. & S. Electrical Contractors, Ltd., Guildford. *Dismantling airfield lighting*: E. Dyne & Co., London, S.E.6.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ending February 14:—

London: Hampstead, Seco houses, Howard Farrow, Ltd., Bank-bldgs., Russell-parade, Golders Green. Lewisham, Arcon houses, Thomas & Edge, Ltd., 25, Greens-end, Woolwich, London, S.E.18; U.S.A. houses, Thomas & Edge, Ltd., 25, Greens-end, Woolwich, London, S.E.18. *Berks*: Garston, Alterations, etc., to Building Research Station, G. H. Kempster, Ltd., Beechwood-rise, Watford, Herts. *Buteshire*: Isle of Arran, Post Office and Telephone Exchange, Speirs, Ltd., 257, West George-st., Glasgow, C.2. *Ches*: Runcorn, Housing sites, The Norwest Construction Co., Ltd., Litherland, Liverpool 21; Macclesfield, Arcon houses, J. Gerrard & Sons, Ltd., Swinton, Manchester. *Durham*: Billingham, Tarran houses, Middleton & Co. (Blackpool), Ltd., Bank-st. Sidings, Blackpool. *Flintshire*: Rhyl, Arcon houses, R. A. Buckle, Victoria-rd. West, Prestatyn. *Hampshire*: Bournemouth, Aluminium houses, Brazier & Son, Ltd., 303-5, Portswood-rd., Southampton; Winchester, Universal houses, A. J. Dunning & Sons, Weyhill, Andover. *Herts*: Elstree, Arcon houses, Catchpole, Ltd., Leighton House, Potters Bar. *Kent*: Sheppey, Seco houses, F. Parham, Ltd., 1a, Eva-rd., Gillingham, Kent; Hollingbourne, Aluminium houses, Chitterdon & Simmons, Ltd., 3, Buckingham-pl., London, S.W.1. *Lanarkshire*: Glasgow, Central kitchen and dining-room, Robert M. Gibson & Co., 161, Langside-rd., Glasgow, C.2; Bishopbriggs, Dining-room and scullery, Campbell Bros., 140, Deanstone-dr., Glasgow, S.1. *Lancs*: Ashton-under-Lyne, Aluminium houses, H. & J. R. Bradshaw, Hill-la., Blackley, Manchester; Aintree, Telephone Exchange, Gregeen & Sons, Ltd., Longmore-gr., Aintree; Eccles, Aluminium houses, Henry Green & Sons (Builders), Ltd., Stocks House, Cheetham; Farnworth, Aluminium houses, Geo. H. Pearse & Son, Darley-st., Bolton; Salford, Kitchen, David Walton & Co., Ltd., Clarendon-rd., Salford 5.

Leicester: Leicester, Tarran houses, Sheriff & Co. (1943), Ltd., Gipsy-la. Works, Leicester. *Lincs*: Brigg, Arcon houses, R. M. Phillips & Son, Ltd., Estate-rd., Brigg, Lincs. *Middx*: Kenton, Kitchen and dining-room, E. & C. Costin, 226, Kenton-rd., Kenton. *Midlothian*: Dalkeith, Central kitchen, John Moncheith, Ltd., 6, White Hart-st., Dalkeith, Midlothian. *Norfolk*: Norwich, Building Trades Training Centre, J. Cochrane & Son, Ltd., 39, Victoria-st., London, S.W.1. *Northamptonshire*: Irlingborough, Arcon houses, A. J. G. Potter & Sons, Ltd., High-st., Stanwick, Wellingborough. *Northumberland*: Bedlington, Aluminium houses, John Urpeth, Fairholme, North Ridge, Bedlington; Alnwick, Aluminium houses, J. G. Green & Sons, Ltd., Warkworth, Morpeth. *Notts*: Hucknall, Tarran houses, Sheriff & Co. (1943), Ltd., Gipsy-la.

Works, Leicester. *Oxfordshire*: Chipping Norton, Housing sites, Benfield & Loxley (Oxford), Ltd., 106, Bullingdon-rd., Oxford. *Renfrewshire*: Paisley, Arcon houses, Houston & Young, Ltd., Cochrane-st., Barrhead. *Suffolk*: Ipswich, Tarran houses, A. Kenny & Sons, Ltd., Army Works, Ipswich. *Surrey*: Chertsey, Asphalte Works to new roadways, The General Asphalte Co., Ltd., Hope House, 41-49, Gt. Peter-st., London, S.W.1; Malden & Coombe, Arcon houses, Walker (Tooting), Ltd., Cadman House, Beddington-la., Croydon. *Warwickshire*: Birmingham, Bryant houses, C. Bryant & Son, Ltd., Whitmore-rd., Small Heath, Birmingham. *Westmoreland*: Kendal, Tarran houses, Fisher & Webster, West End-rd., Morecambe, Heysham. *Wilts*: Highworth, housing sites, E. & H. Burgess, Ltd., 34, Grosvenor-gdns., London, S.W.1.

Worcs: Kidderminster, Arcon houses, M. A. Boswell (Contractors), School-st., Wolverhampton. *Yorks*: Leeds, Building Trades Training Centre, Frank Haslam, Ltd., Regent-chbrs., Hall Cross, Doncaster; Todmorden, Tarran houses, Luther Mortimer, Victoria-rd., Hebden Bridge; Bradford, Aluminium houses, Higgs & Hill, Ltd., 33, St. Paul's-st., Leeds; Bingley, Telephone Exchange, Walter Smith, Gilshead, Bingley, Yorks; Knaresborough, Dining-room and kitchen, Arthur Stephenson, 52, Hookstone Chase, Harrogate, Yorks; Sheffield, Alterations and additions to Blood Transfusion Centre, Hadden Builders, Ltd., 40, Spring-st., Sheffield 3; Heckmondwike: Tarran houses, Harold Hirst & Sons, Bradford Builders Group, Bradford-rd., Birkenshaw, nr. Bradford; Hornsea, Arcon houses, R. Cleminshaw, Ltd., 103, West-parade, Hull.

¶**London (War Dept.).**—Works contracts placed by War Dept. for week ended February 9:—

Kent: Miscellaneous work, H. Goodsell, Canterbury. *Londonderry*: Miscellaneous work, Laurance E. Holmes, Limavady, Co. Derry.

Marlow.—26 houses at Seymour Park-rd., for U.D.C. C. Kelvin Smith, M.Inst.M. & Cy.E., P.A.S.I.: *E. J. G. Morgan, Ltd., Oxford-rd., Uxbridge, £27,729.

Morpeth.—30 houses, for T.C.: *J. Urpeth, Front-st., Bedlington, Northumberland.

Northampton.—164 additional houses on 17 sites, for R.D.C. R. J. Miller, S.: *Northampton Master Builders' Association, Derngate House, Derngate, Northampton, £187,572.

Reading.—138 houses at Whitley, for T.C.: *Reading United Builders, Ltd., £165,330 (subject to M.H. approval).

Salford.—110 "Easiform" houses at Summerville-rd. estate, Pendleton, for T.C. W. Albert Walker, City E.: *John Laing & Son, Ltd., Mill Hill, N.W.7, £125,156.

Scarborough.—24 houses at various sites, for R.D.C.: *Ernest Hunter, Belle Vue Works, Beaconsfield-st., Scarborough, £23,991.

Sheffield.—24 houses at Parson Cross estate, scheme No. 5. W. George Davies (F.), City A.: *J. Copley & Sons, Ltd., 120, Springfield-rd. (12); *H. Houldsworth & Sons, Ltd., 14, Hounsfield-rd. (12); both of Sheffield. Note: Under the Apprenticeship Scheme and the Contractors are the apprentice masters appointed by the Local Apprenticeship Committee in accordance with a scheme approved by the M.H. for the training of Building Trade Apprentices.

Swinton.—60 houses at Highfield Farm site, for T.C.: *E. Sutcliffe, £61,633.

Walsingham.—90 houses in seven parishes, for R.D.C.: *Potter Bros., Toftwood, East Dereham, £110,015.

Whitehead.—14 houses at Windsor-av., for U.D.C. Oliver N. Wheeler, A.R.S.U.A., Kingscourt, 17, Wellington-pl., Belfast: *Thomas Lindsay & Sons, Richview-st., Belfast, £17,474.

Wilmslow.—52 houses, Meriton-rd., for U.D.C. H. H. Hamilton, S.: *F. J. Gibson (Builders), Ltd., 38a, Manchester-rd., Wilmslow, Ches.

Wolverhampton.—School kitchen, Springfield-rd., for M.E.: *East Midland Construction Co., Ltd., Lower Green, Tipton, Staffs.

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